DIGITAL Journal

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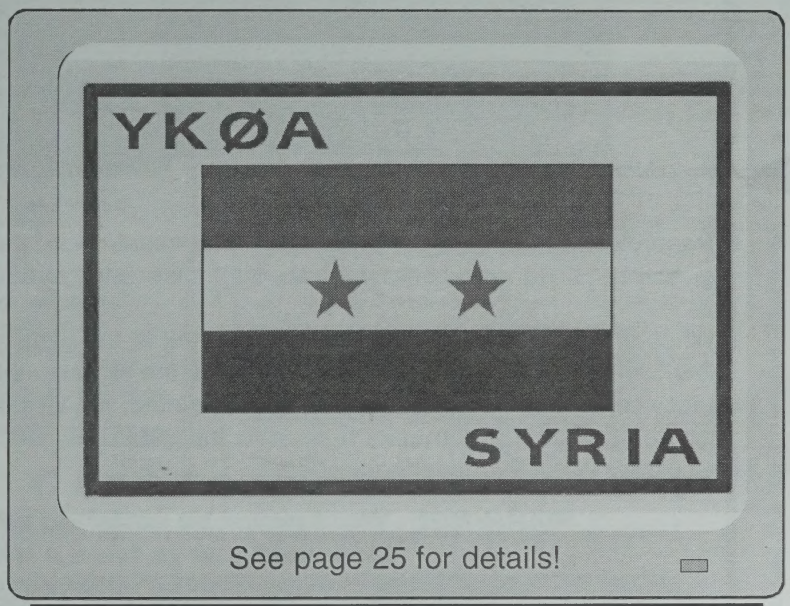
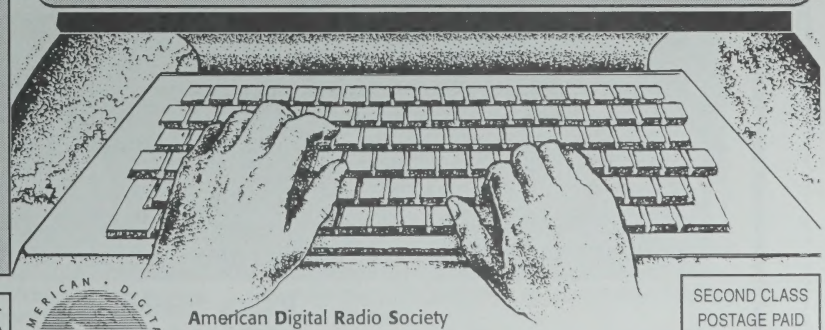


See page 25 for details!



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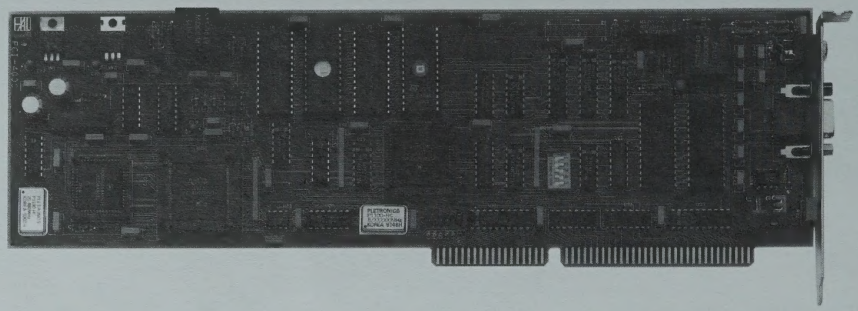

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Amateur Digital Communications

What Comes Next? -- Part Two

Edited by Jim Mortensen, N2HOS • PO Box 328 • Indian Rocks Bch, FL 34635
CompuServe ID: 71573,1077

Contributors to this series include Bill K9GWT, Charles NX2T, Chiharu JA3DLE/1, David K1ZZ[1], Don W6JL, Fred DK4ZC Hans N8PGR, Joe W3/G3ZCZ, Nick N4SS, Peter TY1PS, Phil K0XI and Tapani OH2LU. We wish to extend our thanks to each and every one for the gracious gift of their time and talent. Nothing could happen without them!

As we continue our journey into the future, we recognize that digital operations encompasses more than modes, computers and transceivers—subjects covered in Part One of this series. Several more stops are required before we complete even a partial survey of the digital world. Many hams, by way of example, think that there is nothing of note or value on the bands or in the shack but "the network," that sometimes hard-to-define HF/VHF agglomeration dedicated to the receipt, distribution and/or forwarding of TRAFFIC. Will the networks be impacted by all this progress? What about PUBLIC SERVICE? Do the old definitions and practices still fit either the need or the technology? A very brief look at ANTENNAS follows, an area least subject to drastic new rules. And then, finally, there is the question of our ENVIRONMENT . . . not the anti-pollution, threatened species, hazardous waste kind of issues we hear about every day. Not at all. Environment is about the space into which we commit a CQ and from which we hope to extract an answer. In a word, our QSO space. Will it change? Will it be better or worse? Read on!

THE NETWORK

There are two parts to this puzzle and though there are scattered links, HF digital and VHF Packet nets tend to go their related but separate ways. But we treat them as one here for both networks profess to serve the user, to perform a public or personal service. Is there to be a technological impact on network operations? Let us first apply some perspective by reciting, once again, some of the peripheral happenings that have a bearing on our network, our ability to stay in touch with one another, in a world engaged in doing precisely the same thing.

Keep this figure in mind, as a start—today and every day 17000 brand new phone numbers are created in the United States. Two-thirds of those are cellular. **Thus about every fifty days there are more new mobile wireless stations created in this country than there are licensed U.S. amateurs; every year six to eight times as many**! And that is on top of the millions of users already out there. The growth is accelerating. In truth we are rapidly becoming a 'wireless' society. And not we alone. The international cellular development is, if anything, on a steeper part of the curve than in the USA. The growth can only be described as explosive even though we have not yet reached the point where the customer's cost can be called trivial. Still substantially above the cost of the home or base unit, cellular is a significant, incremental expense. Yet those millions see it as a communications bargain too good to pass up. Why? There are many reasons. Safety, convenience . . . yes. But, recall our original premise. What this world wants is the freedom and technology to communicate with anyone, anywhere at any time. And cellular delivers and, as its performance improves and its costs decline, it will become every bit as common as the car radio . . . in a very few years!

While I tend to entertain some doubts about the Internet hype that makes it sound as though everybody is (and indeed, must be) *always connected*, the love of the 'wire' links to Internet, AOL, CIS and Prodigy (not counting the hundreds of local BBS outlets) represent one of the great growth businesses of our time. Whether the number of homes connected today is 10, 20 or 30 million is of no great concern. If the estimates are too high now, the numbers will soon be achieved and new, even higher estimates will soon be heard in the land. Add to this the startling fact that, for the first time, sales of PC's for home use exceeded that for business use in 1994 (and two-thirds of them are modem equipped at the time of sale) . . . and the trend is expected to continue. As a country, and as a world, we are drastically increasing our appetite for landline networking and 'free' E-mail every single day. And don't forget the other related phenomena— the cost of a fax is less than postage; don't forget the millions of beepers; nor the upcoming smart beepers; the anticipated Personal Data Assistant revolution somewhere over there in the deep shadows—or (and I detest the term) inter-active television! Let's stop there. Suffice it to say, our networks are operating or trying to operate in a theater where the audience may assume the lead role before intermission.

Put our networks in perspective by a set of facts and figures garnered from various sources. The first has to do with VHF packet in the state of Florida which should be typical of most large states. Here are the one month totals for the top twelve stations reporting to Florida Skip magazine. This group handled 105,000 messages, or an average of 8750 for the month. Of these, almost 78,000 were bulletins (74% of the total), 25,000 were personal messages (24%) and 1379 comprised the NTS traffic total (1% of the total). If we average these totals (there were significant differences in the mix of traffic), it would suggest each station handled about 6500 bulletins, 2100 personal and 110 NTS messages during the month. Keep in mind that there are 43200 minutes in a thirty day month. On average, a new item arrives at the BBS every five minutes around-the-clock, probably about double the rate of a busy HF Winlink station. Note that few if any bulletins are included in the HF totals, though. For the most part the HF sysops eliminated the bulletin services over the past few years. Thus there is little keyboard access except for those who log in to pick up or drop off personal traffic.

Some say at least 70 percent or more of the bulletins on the packet net remain unread. Conversations and 'flames' on the Internet suggest that, for the most part, the bulletins don't deserve to be read. I am no judge of that for my use of packet is restricted to the DX Cluster where, for the most part, the bulletins are somewhat limited and are either DX oriented or local/regional 'for sale' notices. All I do know is that there is no way I could keep up with 6500 bulletins flowing through my local BBS each month! Nor can anyone else, including the most dedicated sysop. For all practical purposes then, we remain unaware of their contents. Perhaps it is best.

Our networks operate in an environment of radical change, perhaps far more fundamental than that of the keyboarder's world. And they must wrestle with issues that have only marginal impact on the rest of us: basic ones like such as, "How can our overloaded system 'compete' and 'serve' when the average citizen is 'communications empowered' to a extent at least equal to the power we have at our command?" Good question, hopefully there are some answers.

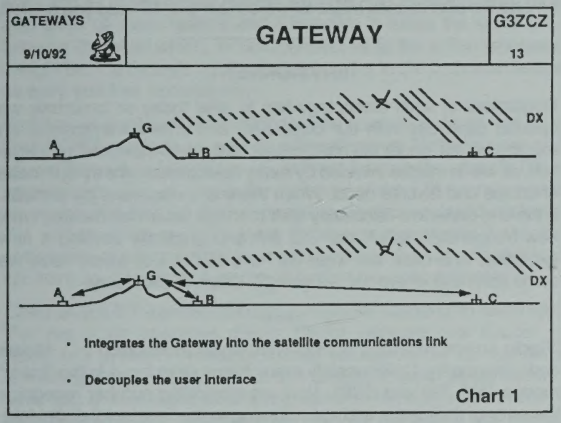
One example is Winlink. Hans N8PGR as follows; "*What I have done, Jim, is offer the 'market' a new library, which allows programmers to easily attach themselves onto WinLink and utilize its internal functions. Technically this may not sound like a whole lot but it opens up WL to a wide range of programmers who do similar work and would like to integrate their product with WL or enhance it by providing additional services. One fellow in England is now running both PLX and WL software and has developed a third program to gateway the two systems as required.*

Another fellow offered to write a land-line interface into WL—another much needed feature (you probably know him by name but I promised not to mention it because so many people are waiting for this feature that he doesn't want to be pressured!)[2] ."

A land-line interface! Without another detail, we know right this

moment that HF traffic handling will never be the same. And within twelve or eighteen months, we will look back and wonder why we did it the 'old way.' Why would or should we fight the QRM and/or poor propagation in a transcontinental link when we could dump those 100 messages into a two minute 28.8K baud link direct to the target station? Why would or should we use 1200 baud to move another 100 messages into the packet net when we could go direct to the BBS by local phone at 28.8K? Why get up at 3AM local time in order to link with VK2AGE or ZS5V when the traffic could move via an Internet wormhole at our convenience? David KB1PJ said as much in these pages last month and it is worth repeating: "*I have reached the conclusion that it is now time for a majority of the traffic over RF, be it HF or UHF or whatever, to be removed from the airways and sent to the land-line.*" Not all agree, I'm sure. "***No RF link?? . . . it isn't ham radio, then.***" I can hear it now and the discussion will roll on for some time. In any event, the network will remain, but its architecture will bear precious little resemblance to today's structure.

Then, as we think about Joe Kasser's (W3/G3ZCZ) input, it is probable that the current packet net won't survive in its present form either. You see, Joe is a true futurist and has a complete plan to utilize the fixed satellites of the future with linked terrestrial gateways designed to 1) pick up local traffic for transmission via the satellite to DX locations and 2) to receive DX traffic for local distribution (see Chart 1). This entire system is designed to operate on 1.2Ghz on the uplink and 2.4Ghz on the downlink. But, read a bit about Joe's concept.



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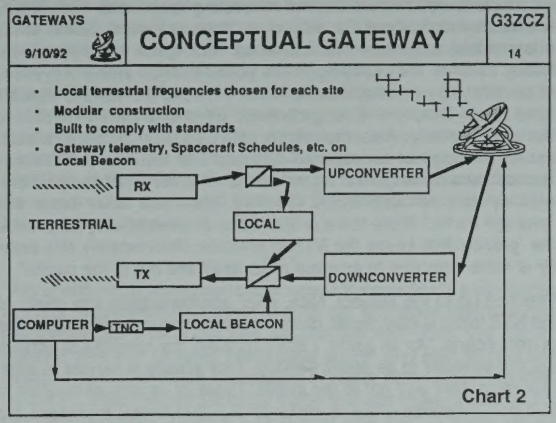
The project identifies Gateways as a mechanism for integrating terrestrial and satellite communications and it has the potential to revolutionize amateur radio. At present amateurs have the use of the microwave bands providing they do not cause interference to the primary users. Use is haphazard and uncoordinated. Random contacts are few and far between. They seem to take place by prearrangement or because of a scheduled expedition. This pattern prevails because microwave users tend to be experimenters not communicators. If we are going to make use of the microwave bands for communications, we have to do it in a way that offers something new. One such capability which seems to have been overlooked is full duplex communications, an opportunity that will allow the amateur community to stake a permanent claim to these bands.

By introducing a Gateway into the communications path, users have easy access with good signal levels and do not have to worry about tracking the spacecraft. The Gateways provide controlled access to the spacecraft, full duplex capacity and exploit the higher frequencies. A block diagram of the conceptual Gateway is shown in chart 2.

When wide band gateways are established in urban areas (where most of the amateurs live), there is no reason why links should not be set up between gateways and neighboring areas, much in the same way that nodes link packet radio LANS. The links would use a



pair of microwave bands as well. (See chart 3). The user equipment for the net is available at modest cost and is also modular. It also uses a 1.2Ghz/2.4Ghz combination. A non-rotatable microwave antenna is aimed at the gateway and may be placed on a mast, roof or balcony.

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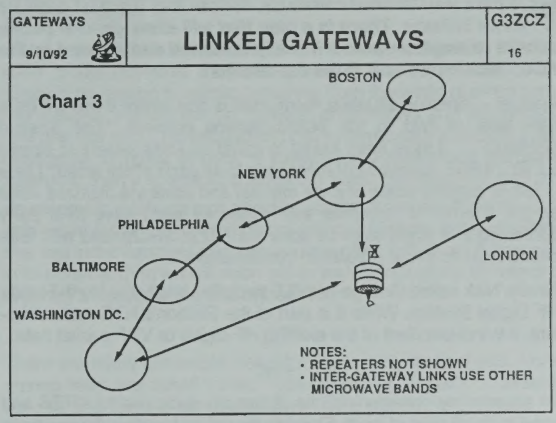

And suddenly there is a virtually unlimited capacity for traffic and a system for working DX that requires little or nothing in the way of antennas or power. Will it be flooded with bulletins? What is to remain of the existing VHF packet network? What happens to the bulletins? We look forward to hearing from those who have a vision of its future.

PUBLIC SERVICE

What, in this 'wireless' world is the amateur community to do in order to fulfill its public service obligation? Even now, if I were to fall down at a busy corner and be in need of emergency help, I would estimate that two out every ten cars driving by the scene would be equipped to call '911' for assistance! Which raises obvious questions. Oh yes, there is room for long-haul HF help in the event of international disasters, even as more and more communication satellites roam our space. The rules remain pretty much in place, particularly if the disaster occurs in the less developed parts of the world. (As an aside, I have yet to hear reports of ham radio's role in the JA earthquake. Reports were conspicuously absent. The only note I saw related to Motorola's unsuccessful effort to distribute cellular phones to the local officials). There will be a continuing need for routine public service in providing communication support to such events as the running of the marathons, the Special Olympics, local parades. But serious questions must be asked . . . and public serve must be redefined, soon.

So I asked, and received some interesting responses. Nick N4SS knows as much about the subject as anyone I know. Some of his observations surprised me. Listen as Nick gives his view of our hobby. "*Things are changing in the public service arena. Advances in telephone systems and competition between the various carriers have made inexpensive long distance telephone calls available to the general public. Also, the systems have become far more reliable, except in cases of widespread disaster. The result is that there is less demand for long haul formal traffic. In order to fill the void created by this reduced traffic load we often see what some call 'garbage traffic.' While there is little value to anyone, they do provide the 'grease' that keeps the NTS in practice. Unfortunately this activity is more a service to amateur radio itself and not to the public.*"

Warmed up to the subject, Nick, after acknowledging that much of the NTS traffic is now digital, drops an interesting comment about the current scene. "*As an aside, I don't consider the handling of personals and bulletins to be public service. That activity is service to amateur radio itself and not to the public. Those of us who participate in true public service strive to make certain that formal messages are delivered in a timely and accurate manner. We monitor the MBOs and BBSs and try to move any stagnating traffic, or help with further routing. There are a few sysops who 'kill' any formal traffic (NTS format) messages which arrive at their BBS.*" But he then jumped to a surprising idea that has apparently received very serious consideration, "*The general public cannot usually access amateur radio facilities to pass their informal comments, nor can they (usually) originate or receive bulletins.* ***There is a plan that will allow general public access to amateur radio if it is implemented and allowed by the FCC.***" Nick knows how to get our attention!

Another interesting situation mentioned is one where there will be a new twist or two to the public service concept. "*The Special Olympics . . . I have been asked to round up some people to handle VERY LARGE quantities of messages to all parts of the world. There is talk of sending some of it via Internet and some via digitized voice on the Internet to countries with whom we don't have third party agreements. It might even be done via ITU in Switzerland with telephone relay to avoid regulation complications.*"

Finally, Nick asked George W4MLE to outline briefly the North Florida HF Digital System. While it is part of the Section's NTS route structure, it is independent of the existing HF digital or VHF packet nets.

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"In emergency communications, it can be dedicated to ARES and used to tie all nine of north Florida's key cities together, linking them with cities in other Sections, particularly south Florida, Georgia and Alabama, which are within normal HF range of Tallahassee. The system is based on the bulletin board concept. The primary hub in the system in early 1995 was the WX4J digital mail box in Saint Johns county. By mid-year AD4DO near Tallahassee will be operational also.

Sections may send traffic to either board using AMTOR or Clover ports on 80, 40 and 20 meters. In ARES operation, AD4DO's receives traffic direct from the point of origin, and also polls WX4J board at frequent intervals for messages addressed to the SEOC or other Tallahassee points.

In effect, the AD4DO BBS serves as a digital gateway for the SEOC. Messages coming in via HF are automatically transferred to VHF packet and transmitted direct to the packet station."

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Yes, this is yet another use for Winlink, that great software contributed to the amateur world by Vic W5SMM (and now maintained and improved by Hans N8PGR). Nick makes a point of praising Vic's efforts for creating the vehicle through which "*NTS went digital.*"

Is there more? Is there some new dimension to public service that we have yet to explore? Will we have direct third party access to amateur radio in the US? Your comments are urgently solicited for this is an issue worthy of serious discussion, now!

ANTENNAS

Where is this high-powered technology when and where we need it most? Tapani OH2LU, bemoans our cyclical fate. "*I am lacking a small effective antenna design for the low bands, from 7 Mhz downwards. But fighting nature's law, 'the more and higher the better' is difficult to fight against.*" Surely there must be some way to violate another one of Mother Nature's rules and regulations! Unfortunately, she holds all the cards.

For quite different reasons I share Tapani's need. We now spend five months of the year in a house where nothing, repeat nothing, that looks, feels, tastes or smells like an antenna is allowed outside the building. Attics, then, become the antenna universe. There are options. Because the plumber was working in the kitchen, the XYL asked if had any 1/2 inch copper pipe. He did, she bought 40 feet and I put up a copper pipe dipole cut to the 20 meter digital frequency. It tunes perfectly, but the thing runs due east and west, hardly ideal. I have a 40 meter dipole ready to string, but it may not get used.

At the Miami hamfest I saw the new Sommers antenna. It's called a "discone." This is an old antenna design but, except for the military, has not often been used at HF. Three 12-14 foot aluminum tubes are arranged in a horizontal disk and deliver a zero degree radiation angle. The antenna is ground independent. The SWR plot is almost flat from 6 to 80 meters and, for those power hungry operators, it will take the full legal limit. Not a bad start! The discone weighs only 35 pounds so construction is a one-man job. Working the six arms among the attic trusses might take a certain skill! I'll keep you posted.

ENVIRONMENT

Regardless of what technology has to offer today or tomorrow, we operate each day with our current rig and antenna limitations, on existing bands, under the handicap of "bottom-of-the-cycle" propagation, all within modes invaded by many newcomers. We try our mode of choice and favorite band. When there is a response, joy prevails. If there is none, we reluctantly shift to those unfamiliar modes, work new frequencies, listen, call CQ, link and gradually develop a new expertise. And often like what we have found. But where have we come from and where are we going? Listen to Bill Henry.

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"Radio communications started with digital modulation . . . Morse code telegraphy. Unfortunately many hams were lured to the 'linear' modes (AM, FM and SSB). Now, an increasing number recognize the error of their ways and are returning to the 'one/zero' digital fold.

RTTY technology evolved in parallel with the electronics industry. Our printers and keyboards started out as surplus Teletype machines, but soon changed to "Glass-TTY" or video terminals in the early 70's. Soon, new microprocessor IC's were an integral part of our RTTY station. The PC boom revolutionized the hobby, and today virtually all digital amateur stations make use of one. Many modern modems include DSP devices and it appears that discretionary component modems will soon be relegated to history.

Along the way, digital amateurs also embraced computer programming. While the early stations depended on hard-wired computers and circuits, the trend is to the use of software routines to perform as many hardware functions as possible. The DSP modem is a good example of this trend. Filters are now computer software routines rather than L/C networks or op-amp active filter stages. We are quickly evolving to a stage where the hardware is minimum and universal!

The only difference between a modem and a dishwasher (for example) may be 1) the software run in the base hardware and 2) the I/O accessories connected to it (radio for digital modes and water valves for dishwashing). The trend is both good and not so good. The hardware is stable but the software has to be changed for each new use of the hardware—and we ALL know about software changes!

Over the past five years, the digital modes experienced an explosion in activity, technology and performance. Well over 75% of all active

hams have at least tried packet radio by now, and many have actual on-air time using RTTY, AMTOR or other non-packet digital modes. Our 'teletype terminal' is now an IBM compatible PC with message storage and retrieval capabilities that no model 28ASR owner could even dream of twenty years ago. Our new DSP-based modems will give error free copy of a signal that we can't even hear—and in fact won't hear until it is ten dB stronger. We now have super modulation and protocol schemes like Clover that send data ten times faster but require one quarter of bandwidth of AX.25 HF Packet.

Some amateurs are even using these new modes to send decidedly non-RTTY materials. TY1PS and N2HOS now regularly exchange very high resolution color images on 20 meters using Clover. It takes 5 to 15 minutes, the bandwidth is always 500 Hz, and the images are error free. No, it's not a 'TV,' 'FAX,' or 'SSTV' emission. Rather, it's a digital RTTY emission. The same thing may be done with digitized voice files. Again, it's not AM, FM, SSB or A3a—it's RTTY! In fact, anything you can store in computer memory can now be sent via HF 'radio teletype.' Text messages, computer data files, executable software, digital image files, and even digitized sound files can now be sent error-free. Sophisticated multi-level modulation and modern compression algorithms speed up the transmission time by a factor of 50 to 100 times over traditional FSK teletype. Modern RTTY has a lot to offer the user.

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Bill is right, of course. We do have a growing dependency on software and all of its frailties. But the struggle may be worth while for it also gives us more options and a freedom to follow the signal patterns on the band which, in turn, connect us to the action wherever it might be. Hardware's rigidity places barriers in our path and denies us easy and free accessibility.

Perhaps we don't look far enough for new adventure. As an end note David K1ZZ suggests an entirely different venue. "*Achievement and competition are not limited to HF. At least for now, the ultimate DX is moonbounce. This is largely the preserve of the CW operators with an occasional fling at SSB between the better-equipped stations. Yet, with the tools available today there is no reason why the digital community cannot participate in moonbounce just as effectively, if not more so. It's simply a matter of finding the right motivator.*"

Chiru JA3DLE/1 traveled through our familiar scenario. In his words, "*For me, I am operating mainly Pactor because now Baudot in Japan is a problem. Normally, almost nobody on the air, but once something rare is announced on the Cluster, a super pileup occurs. Need lots of power and excellent antenna to overcome this pileup. I am a bit tired of it . . . and there are still very few people who can do Pactor. This is nice indeed.*" Sound familiar? He adds a note about bands as well. "*Under these conditions we need good antennas but we also need low band activity. 40 and 80 meter RTTY is very interesting but I listen almost every day and there is no activity unless a contest is on. We must promote the use of these bands.*"

Meanwhile, back at the keyboard, Tapani OH2LU adds a final comment and hopes that DSP technology will improve our equipment's performance in one particular way. "*The usage of frequency spectrum has increased a lot in digital . . . but there are still no easy methods to determine the quality of signals both at the transmitting and receiving ends of the QSO. Too often, a signal repeats itself two or three times on a band that is already crowded.*"

And then Fred DK4ZC lays his final thought on the table. As usual, he it is in plain and simple terms. "*I think we do not need a better bandplan or a wider band for digital modes. We will not get it. What we need is a technology that meets the requirements of our restricted bands so that it will be possible to have 40 paths or more in a band segment of 10Khz instead of today's ten.*"

Fred is correct in so far as today's technology and practices are concerned. And it remains essentially true even as the 'new' comes into use on our bands. But the looming changes in person-to-person amateur communications are more traumatic than mere narrower bandwidths or adjustable power. Whatever keyboard-to-keyboard application we pursue, whether it involves only typed words, or words and image files, or some as yet unknown combination, all of our boundaries are on the brink of change, moving further out to allow more and better kinds of activity. These new vehicles will not stop at the band edge of the amateur spectrum, nor end with radio, nor avoid landlines nor satellites in their endless pursuit of efficiency, speed and integration. And we mortals, we keyboarders who have come so far so fast in this computer age, will struggle again and learn how to apply this potential to our particular interests and needs. Revolution is at hand, and Peter TY1PS has an eloquent word or two to say on the subject.

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"Along with more speed and better use of the spectrum, a whole new world of data communications will open up. The times when we happily exchanged 5 bit uppercase text are definitely gone. We already transmit files and pictures these days on HF and start to play with digitized voice. All these capabilities became pretty much standard on our PC's and we will integrate these features more and more into our radio systems. Believe it or not, in less than 5 years we will exchange voice at real time over HF paths routinely at far superior quality than present SSB. Again it is the DSPs that will squeeze down voice to data streams small enough to cross HF links at real time. SSB voice will one day soon remain as an antique way of communication. Some fans will use it, just as a few still use AM or construct steam engines. Even live video will come to us sooner than you may believe!

Along with all that, we will also achieve more integration into the other global networks that are spreading around and about us. There is no reason to isolate ourselves from the world of wired communications. We will see an increase of gateways and wormholes, and one day soon, full integration of all systems with a smooth interchange of all types of data. If today's legal restrictions put walls against it, then it is time to change the laws. We must not stop the development.[2] We cannot afford to isolate ourselves from the outside world these days when global communications are essentially free and in the hands of anybody and everybody. If we don't take part in this drama, then we will soon act as an isolated group of veterans enjoying a disappearing and ancient art. "

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There are many admirable, beautiful and worthy ancient arts. None among them are called "radio," "computers" or "digital" . . . at least not yet. But there is no guarantee! There will be no paralysis, no arthritis, no freezing of the joints if we continue to exercise our technology. . . and our brainpower.

We have "*been over to the future*" and it will no doubt work! Our collective vision is, we trust, better than that of Henry Ford II who, in 1957 said, "*The Edsel is here to stay!*" Or, the manager of the Grand Ole Opry who told Elvis, "*You ain't goin' nowhere, son.*" Only time will tell. But even if our group forecast is wide of the mark in some respects we do know one thing for sure. Whatever is going to happen will happen at unprecedented speed. In the commercial world there will be serious economic casualties. Fortunately for us, we have nothing more at stake than our ego, the accelerated obsolescence of our equipment . . . and our privileges on the radio spectrum. So be it.

As in the beginning, we sit at the keyboard, looking at the monitor, surveying the rest of the hardware spread around this room, wondering what comes next, and whether we are up to it. And we no doubt will be. Be reminded by an obscure French philosopher named Weil that "*The future is made of the same stuff of the past.*" Even when the highest level of technology is envisioned it is simply a new and better mixture of the stuff of the past, one producing endless variety. "Stuff" remains constant from one technical iteration to the next. But attitudes and habits toward and utilization of the "new" must change. There is little choice. We either welcome the future and redefine our participation in it (and accept the concomitant learning curve), or stand still and thus retreat into the comfortable past.

The decision is ours for no one, anywhere, owns the right to dictate our behavior . . . and that is both the beauty and the limitation of our hobby. We catapult ourselves into the next century of digital technology with but a minimum effort, on the one hand . . . or settle back and proclaim our territory and our methods as the chosen mode on the other. And too frequently deter the efforts of those around us who want to move the world forward. It is our own, our personal choice. I urge you to start now; don't miss the fun, the adventure, the thrill of discovery, the sense of power realized when you send and receive a complex graphics or voice file, utilize a satellite's magic, bounce a signal off the moon, exploit a wormhole, invent a new use of the landline links . . . and, all the while, continue to chat with your friend(s) in a keyboard exchange. This is the essence of amateur radio's credible power; ours only if we each choose to master the coming technology. Join the digital revolution. Now!

****

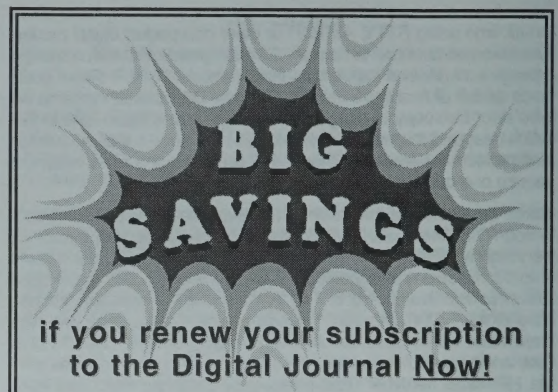
Once again, I want to thank those who so generously contributed to this series. To each of them, a special thank you (and a personal hope that your material was not in any way misquoted or misapplied!). de Jim N2HOS.

***

[1] Please note that David K1ZZ, Executive Vice President of the ARRL, is expressing his personal opinion and not that of the ARRL or any other ARRL official.

[2] The Economist (Feb 25, 1995 p 13) . . . Rather than hindering such changes, governments should pursue a simple principle—wherever possible, change should reflect the free choices of their citizens. Besides . . . the multiplication of channels of communication will create the antithesis of Big Brother (of Orwell's 1984). Instead, Big Brother will find it impossible to keep tabs on all the information that is passed through wires, cables and airwaves."

[3] "To summarize: the new interface library I have created will allow any Windows programming language that can attach onto a Windows DLL (Dynamic Link Library) to directly communicate, interface and control the behavior of WinLink. It gives them full access as well as control of important data files—like the the WinLink USER file and the all important MESSAGE directory. This library will spawn many new add-on products and will speed up the process of bringing new features to the table. Vic (W5SMM) and I agree a long time ago we would do things differently would we have a second chance. There is a possibility that WinLink will get rewritten!"



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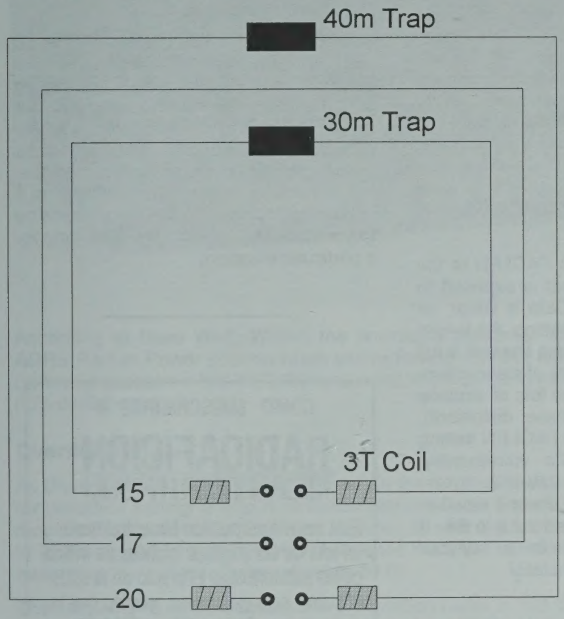
The Split Quad Loop

A 15-17-20 Quad + 30 and 40 Meters

by John D. Rigsby, N0FAC • 10644 Grant Drive • Northglenn, CO 80233

Has anybody every suggested a split loop quad, one that would add 30 and 40 meters to the 15 and 20 meter loops? "The Quad Antenna" book by Bob W4MB is a worthy guide and discusses every conceivable kind of quad, double loops, parallel loops, etc., but nothing about traps. The articles in QST by Lew W1ICP discuss Quads Vs Yagis. And there was that one by K0SR about a



Both Driven and Reflector elements are trapped on the 15m and 20m loops

4-band quad array, 25 feet on each side, which is described as a "reduced size" antenna! Antenna Mart has a Max-Gain system with 26 foot spreaders! A big 40 meter quad is not really workable on a city lot as the 20 meter quad already looks as big as the house.

I have never seen a split loop quad advertised by any manufacturer. But I am inviting them to start making them immediately. While they may have a snorkel lift to get them up there to optimize things, that kind of a rig costs me $230 a day. So I couldn't play with this idea except at ground level with my homemade quad loop jig. Thus this remains an idea-tested concept antenna.

This project started during the January 1995 Dxpedition to South Georgia. Something happened that I did not anticipate—they didn't operate on 20 meter RTTY! This was a bit of a shocker after having spent almost 40 hours of watching and waiting for them to show. Most of the Delta DX Club felt the same way, shocked and dismayed so I understand. A QSO with W5RKK Bob revealed that they had given money to the Dxpedition ahead of time and were expecting them on 20 RTTY and felt a betrayal of interests. In North Carolina, Lad W1CRL had seen them come up on 40 RTTY with an S-9 signal for three hours. I had tried to tune the 20 meter loop of my 15/17/20 quad to 40 meters in desperation, but the heat generated by the SWR from the antenna to tuner made that a bad idea. It was about to destroy the HP filter and also the final coil of the L-C-L tuner. I then gave up the idea of working them on 40 or 30. It just wasn't worth it.. There was always "next time."

What to do? At first the idea of making a 30/40 vertical half-wave sounded simple. And it is, but that idea evaporated when I thought of the quad being 5 "S" units better than a vertical most of the time. And even when the vertical is receiving very well, in polarization, the quad is 3 "S" units better. My comparisons show this on both 15 and 20 meters. So, the modifications to the quad became the more favorable idea.

If only I could get up there and snip the 15M loop in the center, it could probably be loaded at 30M. If I snipped the reflector in the same manner, we would have the makings of a two element folded-back yagi. At first I thought maybe this would work with a pneumatic relay or a 12V relay with some protection for the leads. But then what about the trap? If they worked, it would be much simpler.

I ordered two each 30 and 40 meter Unidilla/Reyco traps from AES in Milwaukee. They cost $20 each. You have to buy two for each quad for the traps were intended for use with a dipole. In the case of the quad both the driven and reflector elements need traps. When I checked the 30M traps on the bench with MFJ 259, I found that they were high in impedance at 30M, as they should be. But as I went up in frequency the impedance dropped off sharply at 25 Mhz and at 28 Mhz it was almost a dead short (very desirable). At 21 Mhz, however, there was some residual capacitive inductance. So I knew I would had to add either length to the loop or add inductance. When I checked out the 15M loop with 30M installed, it was indeed about 1 Mhz high in resonance. I then added inductance. A coil of about three turns will change the resonance down 1 Mhz and cancel out the capacitance effect of the trap. The 30M dipole was active, as anticipated. While my XYL supported the 15/30M quad loop in a vertical position in the jig, I made a successful 30M contact with John W6BNC in Laverne, CA. He gave me a 579 for my 100 watts. No damage to the trap was visible at that power. It is unknown how much power the Reyco trap could take when used in a quad. However, it is obvious that not much lengthening of loop would be necessary if the trap was designed with a greater capacitance value.

Note: Let me mention, also, that if the one wavelength quad loop is made a little longer, the corner can be short-circuited to bring it into resonance at the desired point. The 10"-to-10" point would reduce the loop by six inches at each corner. The loop could easily be reduced be two feet. This method for bringing the loop to perfect resonance is simple and quick.

I was disappointed when checking the 40M trap. It appeared to have the same capacitance as the 30M, but with a larger coil. The impedance was therefore even higher at 14 Mhz than the 30M was at 21 Mhz. However, when checking out the 20M loop with the 40M trap at the top, it was surprising to see that the increase in loop resonant frequency was very close to the same as with the 15M loop, about 1 Mhz. Of course the necessary coil to 'lengthen' the loop is slightly larger.

In summing up, you now know what to expect when adding a trap to the quad loop—about a 1 Mhz rise in resonance of the loop. This has to be compensated for in order to operate the loop at the original design frequency. Of course, a manufacturer can make the loop larger to start with. No coil would then be needed to 'lengthen' the loop.

Finally, I am calling on manufacturers like Cubex, Lighting Bolt, Antenna Mart, and maybe even Hi-Gain or Cushcraft to optimize this modification and incorporate it into their designs. Many of the RTTY Dxers know we need it for the sunspot minimum—especially for the Dxpeditions like the SGI group who stubbornly operate low band. I heard they didn't want to "waste" the 20M opening on RTTY.

Packet Power

Tips for the new and seasoned packet user

©1995 by Dave Wolf, WO5H dba Maingate Resources
P.O. Box 189, Burleson TX 76097-0189 / CompuServe ID: 73427,2246

Much Ado About Something

Much has been written about the "ideal" parameter settings for your TNC (terminal node controller). There are those who feel very strongly that TNC manufacturers should study the default settings and use some that just plain work better. If only it were that simple...

The default settings of your TNC were established after painstaking empirical experimentation and analysis after the first TNC-1 was unleashed. These defaults were selected to give optimum performance at 1200 bps on two meters. Precisely, these tests were conducted in Tucson, Arizona by the design team of the TNC that is now known as TNC-1. As your TNC comes out of the box, these settings will get you on the air with a minimum of hassle. You can do better, however.

The timing parameters are adjustable because every situation is not like that of Tucson in the mid-1970's. You must educate yourself about what all of these settings do before you start tweaking and sending parameter setting commands to your TNC. You are headed for packet disaster if you take the word of a ham buddy who claims to be an 'expert' and starts changing your settings without very careful study of your individual situation. What works for his station may not work for yours. Parameter customization is a real art, and you are best off learning the craft and making the adjustments yourself.

This month, we'll take a look at a couple of settings, PACLEN and MAXFRAME.

PACLEN

First, get in touch with the person who operates the BBS or Cluster or node that you use most often. find out what PACLEN they use. PACLEN is the parameter which controls the packet length, or the amount of actual data that is sent in a packet frame. You shouldn't use a PACLEN any longer than they use. If you use a node or digipeater, find out what PACLEN it is set for. Your PACLEN shouldn't be any longer than the node or digi, either! Adjust your PACLEN to match the shortest PACLEN setting of any entity you are connected to. If your node uses a shorter PACLEN than the BBS, then use the node's PACLEN setting.

What if your BBS uses a different PACLEN than the DX Cluster that you check into? Change your PACLEN to match the PACLEN of your service provider. This may seem like a lot of work to change the PACLEN when you go from one service to another, but your throughput will improve quite a bit. Remember, if you use a node or digi and it uses a different PACLEN setting than the BBS or Cluster, use the shorter PACLEN setting of the two.

If you feel that it is too much work to keep changing your PACLEN setting, then find out which station that you frequent (node, digi, Cluster, BBS) has the shortest setting. Adjust yours to match that one and you will reasonably okay. Again, lots of work, I know.

Another consideration to PACLEN is the length of time your signal is exposed to potential interference. Data is linear, so the longer the PACLEN setting, the longer your signal is present. If the channel is full of hidden transmitters, lots of static crashes, or you are plagued by lots of airplane flutter (with resulting phase distortion!), consider using a shorter PACLEN setting to reduce your signal's vulnerability. Instead of the usual 230-255 bytes, reduce it to 132. If that doesn't result in sufficient improvement, reduce it to 64. If this doesn't work, then it is fair to say your situation is darn near hopeless!

MAXFRAME

The MAXFRAME parameter controls how many frames are sent out before an acknowledgment is required from the station (or node or digipeater!) you are connected to. Packet 'guru' Dr. Phil Karn, KA9Q, has shown both theoretically and empirically that for most circuits, a MAXFRAME of 1 is best. In my experience, as a user of various packet services, a BBS sysop, and forwarding over hard-wire between two computers, as far as most conditions **using RF circuits**, Phil is right on the mark! If there were only two stations on a link and there were no digipeaters or nodes between you and absolutely no hidden transmitters, you could use a larger MAXFRAME setting to great advantage! Using an unpredictable radio connection, you are best off following Dr. Karn's advice.

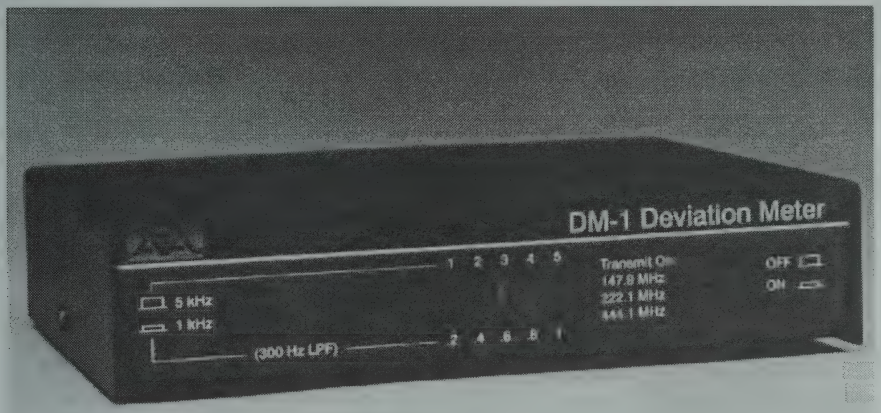
Put in practical terms, here is the scenario using a MAXFRAME of 1: Your station sends a packet. It must get an acknowledgment from the station (or node or digi) it is connected to. If the acknowledgment says "I received the frame a-ok, send another" then the next frame is sent. Nice and neat. If the ack says "I didn't get a part of the last transmission, send it again" then the **whole ball of wax is repeated**. Not just the part that was missed. If your MAXFRAME is 5 and one bit was messed up, all 5 frames are resent. On a clogged or unpredictable path, this means a lot of extra congestion for all to deal with. Plus something even more important. The longer your transmission, the more vulnerable it is to a 'hit.' A hit is anything that is disruptive to your transmission, such as a static crash, phase distortion, or hiccup from a hidden transmitter. It is best to keep your exposure to hits as small as possible.

Used together, PACLEN and MAXFRAME can be mighty tools to help improve your success using packet radio! Minimizing your exposure to hits by keeping your PACLEN and MAXFRAME settings as low as possible. You maximize throughput by keeping these settings as high as possible. In real world situations, a MAXFRAME of 1 and an appropriate PACLEN arrived at by experimentation will be the best setting for a particular situation!

AEA's DM-1 Deviation Meter

A Hardware Review

by Jay W. Townsend, WS7I • Post Office Box 644 • Spokane, WA 99210
jayt@comtch.iea.com



According to Dave Wolf, W05H, the prominent author of our ADRS Packet Power column when you're having connect difficulties on packet the first thing that you need to check out is your rig's deviation.

Overdeviating.....

As Dave stated in his February 1995 article the optimum method for deviation setting is with a deviation meter or with a service monitor. That got me thinking and I followed up with a quick call to AEA's marketing department and obtained the DM-1 deviation meter that they offer for approximately $170.

The first thing to note about the DM-1 Deviation meter is that its not for the PCG (PacketCluster God). Most of the PCG's stuff is crystal controlled and its important to note that the DM-1 was designed for the packet user running a transceiver. It measures deviation on three specific frequency's, one in each of the 144, 220, and 440 bands.

It operates on 147.9, 222.1 and 444.1 in the amateur bands.

Features:
Fixed Tuned to ensure stability
Dual ranges for accuracy
Audio Output available
Compact and battery operated

The first thing necessary after opening the package is putting in a 9-volt battery. If you're like me that means another trip to the store to pick up a new battery.

There are a couple of neat things that the DM-1 has on it. The first is the capability to check your CTCSS tones. Most of the repeaters are now using those and its nice to check those with the meter. You might note that the 1 Khz. range of the meter is for that purpose.

AEA has included with the DM-1 a complete little 12 page manual complete with a nice schematic. Hooking up the meter to the rig is easy enough and the unit is well marked to show you which is input and which output. They suggest that you use a dummy load which is good practice, but what the heck I don't have a 440 dummy load so I winged it!

The Test

I have a bunch of radio's which have VFO's and are being used in packet service around the shack so I pulled the Icom 28H down and plugged in the unit. Following the instructions I set the VFO on 147.9 and fired it all up. Well no surprise I had it just a little under 3 Khz which is close to optimum.

I have always had a bit of trouble with a 220 Icom rig which I have on the backbone and wanted to check it next. I again hooked things up and fired up... Ah, success, or at least now I know why there is a market for this stuff! I have no other 220 gear but this one radio and I had never bothered getting Jim, WB7AVD, my technical guru over with his service monitor to check things out. But here we are with a 220 rig on the backbone which is over 5 Khz of deviation. The scale on the DM-1 clearly indicated that I had a problem. Off to find the manual and then I began the process of tweaking things to get it in order. I also tried the meter on 440 and found that my Yaesu radio that I use on that band was in good operating order.

Adjusting Deviation

In changing deviation there are usually two methods. You can change the radio or the TNC. Since I use the 220 radio only for packet I elected to change it there rather than take the computer apart and adjust the packet controller board that's inside. We usually adjust the TNC's to the radio and that's where you should change things so that your use of he radio on FM voice isn't completely messed up. The TNC adjustment is also usually a bit easier than playing with the radio.

The AEA DM-1 Deviation meter is a useful addition to the shack and I would like to suggest that the local VHF/UHF club would get a big bang out of having one available for the club members.

The Trip to the Hill

All of this deviation stuff reminded me of the time when Jim, WB7AVD and I were up on the "hill" working on the DX packet cluster and our buddy Hal, WA7EGA, hollered at us about how "bad" our system was working. We measured Hal's deviation and found him to be about 17 Khz wide and helped him adjust things on the air. Lucky that Jim had his $10,000 service monitor with him. The correct setting of deviation is going to be even more important as we move into the world of 9600 baud packet and above. The AEA DM-1 is a useful digital accessory.

Remember...most packet problems are on the RF level and that the TNC that you just purchased at a Hamfest was probably not used on the same radio as you have. The use of the DM-1 will give you a helping hand.

The Contest Chair

Hints, Tips & Inspiration for Better Scores

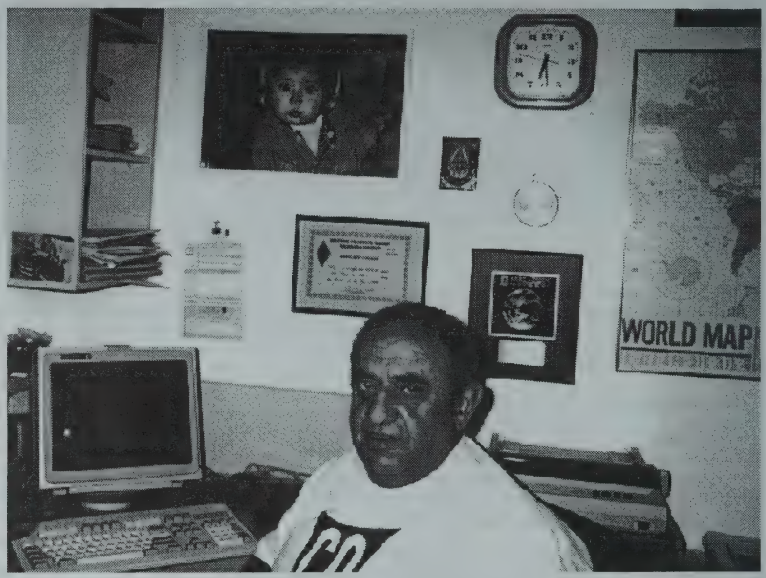
by Ron Stailey, AB5KD • 504 Dove Haven Dr • Round Rock, TX 78664
Internet: ron481@austin,relay.ucm.org

HelloContesters/DXers, the month of May brings the Volta contest.

Volta is a so called 24 hour *Ironman* contest. Yet at the same time it's a rate contest. Lets all give it a try for there is usually plenty of DX to work. Lets hope that conditions are good enough for us to hear them! hi hi

This month we will visit with Arie 4X6UO in Israel. Arie has been a subscriber of the Digital Journal for many years even, when it was called the RTTY Journal. And he is in just about every contest that appears on the air.

Arie is the HF manager of the I.A.R.C. (Israel Amateur Radio Club). He tries to promote interest in digital communications and get others interested in RTTY contesting, as RTTY is his favorite mode of operation. He takes an active part in every RTTY contest, mainly because so many of his friends need him as a multiplier. Arie is usually the only 4X station operating in any contest.



His antenna is a KLM KT-34-A on a 14 meter tower located on top of a four story building about 95 ft above the ground. He uses a dipole between two buildings for 40 and 80m. The rest of his station consists of an Icom IC-751, Heathkit SB-1000, Drake MN-2000 tuner, TNC PK-232MBX modified for Pactor, Timewave DSP-59 filters and a 486-33mhz computer. For tuning he uses a Kenwood SM-220 Scope. Arie feels tuning with a scope is far better than just using LED bars. "A scope is the most helpful and quickest tool for tuning" Arie uses PC Packratt II Ver-5.5A for normal digital communications. But for contesting he uses none other than RTTY by WF1B. As Arie puts it, "It's the best!"

His favorite contests are: CQ/DJWW, BARTG, SARTG and ANARTS. He feels the JARTS contest is too complicated with all the details plus age!!! (Note: Arie, we sure hope you will add the new ADRS WPX contest to your list of favorites!)

Arie's more recent contesting achievements are:
1st ARRL Roundup in Asia '94 (using call 4X8STA)
1st BARTG in Asia '94
1st ADRS WPX in Asia '95

Contesting Tips: Arie always starts a contest on one frequency on every band. He is so needed he usually just sets on a frequency and runs stations. Except, that is, for the last 4 to 5 hours of the contest when he will S&P for mults. He always plans his operating hours with Miniprop Plus, to know when and where to be. Twelve hours before a contest he checks all the propagation bulletins he can get his hands on.

Arie says most DX stations work him twice, just to make sure they are in his log for QSLing purposes. He also says the most helpful thing—help for which he is most grateful, is his QSL manager Ruthanna Pearson-WB3CQN. She gets all his logs air mail every week, and after a contest the next day the logs are on the way to her.

Arie is a #1 Top of the Honor Roll on Phone and Mixed modes. He also has 258 countries confirmed on RTTY. He is the CQ check point for his area. For the low bands Arie usually stays on 7038-7035 but is on 80m only by sked. Now you know where to find him during a contest on 40m. hi hi

Here is some information I didn't know. Every ham in the world can have some property holdings in Israel. 4X4SKF (Silent Key Forest) It is the only forest in the world that belongs to hams all over the world and contains 10.000 trees. Every ham or SWL with a call sign can plant a tree, even if he is still alive... Arie says the forest comes alive on Israel's field day.

"Note: (Arie if you will advise us if there is a way we could have someone plant a tree for us, maybe some of us would like to have a tree in Silent Key Forest. I know I would rest easier thinking of some future contester setting under my tree contesting on field day. Please advise I'll see that it's printed).

I would like to think Arie for all his help with this article. It was my pleasure to have met Arie for the first time at Dayton '94, andthanks for all the mults you have given me over the years.

Next month we will have the ADRS WPX Contest results, from last February.

Until next time,

de Ron AB5KD

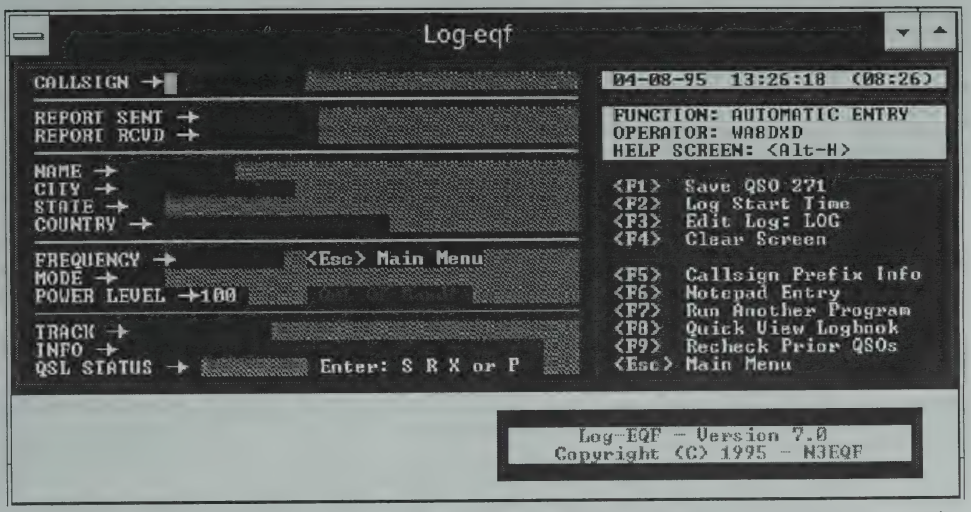
Remember big antennas high in the sky work better than little ones close to the ground...

Log-EQF

A Software Review

by Bob Boyd, W1VXV • 16 Woodlawn Avenue • Kennebunkport, ME 04046-6120

Log-EQF is a logging program for DOS-based PC's which is written and supported by Tom Dandrea, N3EQF. The program is being distributed as shareware and a limited edition version is available from the ADRS BBS. Shareware distribution gives users a chance to try the software before buying it. If you continue to use it after the trial period, you are expected to mail the registration form with $30 to the author.



Log-EQF is a full-featured logging program with support for the following options:

- transceiver interface for logging and control of mode and frequency
- TNC interface for PacketCluster connection, monitoring, and display
- CD-ROM callbook support for SAM, HAMCALL, AMSOFT, QRZ
- support for external programs such as GOLIST while LOG-EQF remains resident in memory
- contest mode which includes dupe-checking, generation of serial numbers, fast logging, scoring and generation of entry sheets and/or disk files for some popular contests

The standard logging features which are included in Log-EQF include the following:

- easy to use menus for all operations, with mouse control - full-screen entry of log data in any order
- easy edit or deletion of any logbook entry
- automatic data and time entry with UTC conversion
- display of DXCC zone, country, continent, beam headings based on entry of callsign
- printing of QSL labels with a personalized message line - ten minute ID reminder
- CW memory keyer outputs to parallel or serial ports
- external device control via parallel port (antenna switch, etc)

The program requires an IBM-compatible PC, XT, AT, PS/2, or higher with DOS version 3.0 or higher. It will run within 512KB of memory, can use either a color or monochrome monitor, and requires a floppy drive and/or hard drive (a hard drive is recommended). Hardware options are a serial port for radio interface, a serial port for connection to the TNC, a parallel port and printer, and a mouse. I tested the program on a 486 system with 8MB of memory, hard drive, CD-ROM with SAM callbook, and serial port for TNC connection and control. I was able to connect to the PacketCluster with my KAM KPC-3, and in a separate session I connected to my PK232MBX and was able to receive RTTY QSO's. I was impressed with the ease of installation and configuration of Log-EQF, and that everything worked as promised! The menus are clean and the user-interface is simple to use. A sample logfile is included, and I added QSO's to it, and then created a new one from scratch. Logging new contacts is a very quick and easy process indeed.

The program includes documentation files on disk which are very well-written, easy to read, and very complete. (I wish that documentation from some of the other software vendors was as well written as this!) There are excellent sections on the radio interface, radio control, TNC operation, CW keyer, and external control via the parallel port.

Registered users of Log-EQF receive four useful utilities which provide following functions:

- DXCC record-keeper utility
- WAS record-keeper utility
- Radio control memory utility
- Import & export of logbook data from/to other logging programs

The DXCC and WAS utilities can be run as free-standing programs or as add-ons to Log-EQF itself; they will track your progress toward the two ARRL awards. The radio control memory program will allow you to store memory and mode data in a diskfile and then recall it at a later time for loading into your transceiver. The import/export utility will directly import files from several popular logbook file formats. I attempted to move data from AEA's LogWindows to Log-EQF by using a comma-delimited ASCII file but the process failed because Log-EQF's time fields include seconds, but LogWindows does not. In my opinion carrying seconds in a log has little or no importance; most users' PC clocks do not keep accurate time so why log it! I could have written a program to reformat the time fields, but chose not to.

In summary, Log-EQF is very reasonably priced and it allows you to maintain a computerized station log on a minimally-equipped PC. It will optionally access a CD-ROM callbook for name and address data, control your transceiver and PacketCluster TNC, and provide some award tracking toward DXCC and WAS. It includes a contest mode for streamlined logging during contests. The full edition containing 5 programs is available from the ADRS software store. See page 23 for details.

DX News

The latest digi-doings from around the globe

by Jules Freundlich, W2JGR • 825 Summit Ave., Apt. 1401 • Minneapolis, MN 55403

As has often been mentioned in this column, a good source of information on digital DX activity are the weekly VK2SG RTTY DX Notes. These Notes are the only on-the-air bulletins with world-wide distribution that are devoted exclusively to reporting the existence of current, as well as forthcoming digital DX activity. Recently, their utility has been questioned by some, since much of their content is devoted to activity of the preceding week.

The Notes are produced for the use and benefit of the entire digital DXing community including beginners, "little pistols", seasoned DXers of all types, as well as the "big guns" approaching the Honor Roll level. What may be "garden variety" DX to one amateur, may well be something that the newcomer needs to fill out his initial DXCC application, or even his next endorsement. Similarly, news of transient dxpeditions are generally of interest to all levels of DX achievement. The reporting of Heard/Worked stations is a custom as old as ham radio itself. It is obvious that by examining operating patterns of stations you may be interested in, you have a good chance to be able to forecast where, and when to find them.

When propagation prevents the timely appearance of the Notes at their normal BBS locations (on HF as well as VHF), complaints are usually received by the editors, so it can be concluded that there is a demand for the type of information the Notes provide. In these days of declining propagation, in order to supplement the on-the-air distribution, the Notes are placed on the Internet.

The Notes are normally identified in on-the-air directories as "RTDXmmdd RTTY DX". On the Internet they can be found via Telnet or FTP at ab6z.ampr.org in the directory called /pub/rttynote. Listings in that directory are of the form rtntmmdd.txt.

The VK2SG RTTY DX Notes can generally be found in the U.S.A. on HF at WA8DRZ, W7DCR, WB2CJL, W2JGR, W5KSI, and on the nation wide VHF BBS system. Overseas they can be found on HF on I5FLN, VK2AGE, and others. They are also disseminated on all the major VHF BBS networks in Europe, Asia and Oceania. A current listing of all non-U.S.A. HF stations that carry the Notes is being assembled. Please send a message to W2JGR advising of HF stations in your area that normally carry the Notes. Any of my addresses/routes listed at the end of this column can be used.

Congratulations to Camille, KA5CQJ, who has received his RTTY Honor Roll plaque. Receipt of his last confirming card just before Christmas 1994 precluded his being recognized in the ARRL 1994 DXCC Yearbook. His plaque overtook the publication of the year book. Camille has the distinction of being the first U.S.A. station to achieve this coveted position.

MORE ON INTERNET

In the March Digital Journal, I mentioned that Jukka, OH2BUA (not OH2BUH, sorry), has a "WebCluster", on the World Wide Web, that receives inputs from other DX clusters worldwide. As of the beginning of April it was receiving inputs from W5/F6CNB, WD5B, GB7DXI, and DB0HFT. Updates are between 15 and 60 minutes late depending on Internet "propagation" conditions. Typical reports give short summaries of WWV, 15 DX spots and 3 announcements. Also you can view the last 25 or last 250 DX-spots, announcements, or WWV reports. The system is constantly developing, as Jukka hacks the software daily. He is searching for a suitable source cluster in the Far East. I would think that he would also be interested in receiving inputs from South America and Africa. If you know of one that could provide inputs, you can e-mail him at jukka@clinet.fi

Aside from letting you know who is hearing what in different parts of the world in near real time, under specific WWV reported conditions, it seems to me that the system has the potential for providing a vast data base to support advanced propagation studies. Perhaps that is Jukka's long range plan. The OH2BUA WebCluster can be accessed directly at WWW URL
http://www.clinet.fi/~jukka/webcluster.html

DX DOINGS

(Signals are 45.5 Baud RTTY unless noted.)

Note that the DX Doings below include activity as reported from world-wide sources. Therefore, some stations may not be seen, in your particular part of the world, at the hours indicated. To make best use of the data given, couple it with your knowledge of propagation paths to your QTH. For help in this regard, see the monthly propagation charts in QST, and listen to the hourly propagation forecasts at 18 minutes past each hour on WWV. Good luck!

ALASKA, KL7, - If you still need to put Zone 1 into your RTTY log, look for KL7WP on 20 meters between 0030Z and 0200Z. QSL to James F. Hein, 689 Sycamore Circle, Kenai, AK 99611.

ANTARCTICA, VK0 - VK0FPS works Pactor in the UTC morning around 1000Z on 14077 khz. QSL via VK3MA,

ASIATIC RUSSIA, UA0 - The planned joint Russian/American expedition to Tuva (UA0Y) has now been set for early July 1995. The callsign is not yet available, but the team is complete. This effort, organized by Pat, AA6EG, and Dr. Yuri Katyutin, UA4LCQ, will have four stations in continuous operation, including one on RTTY. The RTTY operator will NOT be N0ISL as I reported last month. However, John will perform the QSL management chores. So your chances of getting your 80-10 meter, Zone 23, confirmations are guaranteed. If you wish to make a contribution for a station to be left behind in Tuva, send it to John Douglas, N0ISL at 19164 147th Street N.W., Elk River, MN 55330. QSLs will go to the same address. A regular on 20 meters between 0130Z and 0300Z is UA0SMF in Irkutsk. UA0JQ and RA0FU can be found on 20 meters between 0230Z and 0430Z. Also look for UK8URR on 20 meters around 1000Z. QSL routes are needed for these stations.

AZORES, CU - Both CU3EM and CU3UH are active on 20 meters between 1230Z and 1830Z depending upon propagation conditions. QSL routes for both stations are needed.

BRAZIL, PP-PY - Don, PP2ZDX (ex W4RQ), now a permanent resident here, with his XYL, Valha, PP2ZYL, continues to be active on Pactor. Most recently he was on 14069 khz after 2230Z. Don enjoys a good rag chew and likes to describe his interesting retirement surroundings. He has a new QSL Manager, as of the beginning of the year, who has most of his logs. For a quick confirmation, send your card to Bob Hinshaw, WD6L, good in any callbook for the last seven years.

BURUNDI, 9U - The only current RTTY out of this devastated land is being provided by 9U/F6IQA. Peter, ON6TT, operating as 9Q5TT, has given no recent indication of any plans for operating here.

CHAGOS IS., VQ9 - In addition to VQ9SF, VQ9GM is active on Pactor on 14069 at about 1500Z. QSL route is needed.

CONWAY REEF, 3D - If you worked 3D2CU, QSLs for RTTY and CW go to Mats Persson, SM7PKK, Zenithgatan 24 #5, S-212 14 Malmo, Sweden. SSB contacts with 3D2CT should be QSL'd via G4WFZ.

CUBA, CO - This country, once represented on RTTY by only one station, now has several others active. CO2KG operates 20 meters around 1230Z. CO2JE and CO3SG (on Amtor FEC) can be found on 20 meters between 2200Z and 2300Z. The best bet for obtaining a CO QSL is apparently to go via the bureau.

EUROPEAN RUSSIA, UA3 - Mike, W0YR has promised CW and RTTY during his extended stay in Moscow until August 1997. He will be signing R3/W0YR and can be QSL'd via AA9DX, P.O. Box 923, Wood Dale, IL 60191-0923.

FALKLAND IS., VP8 - VP8WA, noted last month as one of the more active RTTYers from this South Atlantic island can be QSL'd to Box 38, Port Stanley, Falkland Islands, via U.K.

FRANZ JOSEPH LAND, 4K2 - Ed, NT2X was told by Slava, RX1OX, operating from FJL, of a possible shutdown of the polar base there, due to budget constraints. If it does happen, it could happen within the next couple of months. If it does, all personnel will be removed to the mainland. This would mean that FJL would no longer be represented on the air. Currently active from FJL are R1FJL (ex 4K2ML) and RX1OX/FJL. So if you still need FJL on the digital modes, keep an eye/ear open.

GHANA, 9G - John, 9G1BS, will happily fill your need for this country, on 20 meters between 2030Z and 2400Z. QSL to P.O. Box 3242, Accra.

GUERNSEY, GU - To celebrate the 50th Anniversary of the Liberation from Occupying

Forces, a special event station will run from 7-13 May with callsign GU50LIB. May 9th particularly will see a 24 hour operation. Modes will be CW, SSB and RTTY.

ICELAND, TF - TF3EJ works 20 meters around 1600Z. QSL via TF3IRA, IARU, Box 1058, IS-121, Reykjavik.

IVORY COAST, TU - TU5DR has been worked on Pactor around 1720Z on 14087 khz. Anyone working this station might suggest to him that he operate Pactor between 14069 and 14080 khz. QSL via the OKDXA at P.O. Box 88, Wellston, OK 74881.

KAMPUCHEA, XU - There have been consistant reports that XU7VK appears at the low end of the RTTY slot on 20 meters around 0130-0200Z, but he still eludes your columnist. A collect telephone call announcing his presence on RTTY will be greatly appreciated.

KUWAIT, 9K - 9K2HN operates Pactor as low as 14067 khz around 2220Z. QSL via HH2HM/F, Michel Hamoniaux, BP 104, Ploubalay F-22650, France.

KYRGHYSTAN, EX - If you have been having trouble getting an EX or UM QSL via the bureau, it is because no cards have been received at the EX bureau from Box 88 in Moscow for over two years. Since many national QSL bureaus are apparently still sending cards to Box 88, thence to an unknown fate, your best bet is to send your card directly to the EX-bureau at P.O. Box 1100, Bishek -20, 720020, Kyrghystan, CIS

LESOTHO, 7P - Ray, 7P8SR, tries 15 meters, propagation permitting, around 1030Z. QSL to Ray Shankweiler, P.O. Box 333, Maseru 100, Lesotho.

MARSHALL ISLANDS, V7 - V73EI can sometimes be found on 20 meters around 2230Z. QSL route is needed. Ken, V73C, the most active RTTYer in the Marshall Islands has a new QSL Manager. All cards should now go to Bruce Smith, N4GAK.

MOLDOVA, ER - ER3ED and ER3KS operate 20 meters between 1330Z and 1500Z. QSL ER3ED via I8YGZ. QSL route for ER3KS is needed.

NEW CALEDONIA, FK - FK8CC operates early in the UTC day around 0830Z on 20 meters. QSL route is needed.

NIGERIA, 5N - 5N3ALE likes to operate Pactor on 21081 khz around 1215Z. As the bands change later in the day, he may be found on 14072 khz as late as 1930Z. QSL via DJ2VZ.

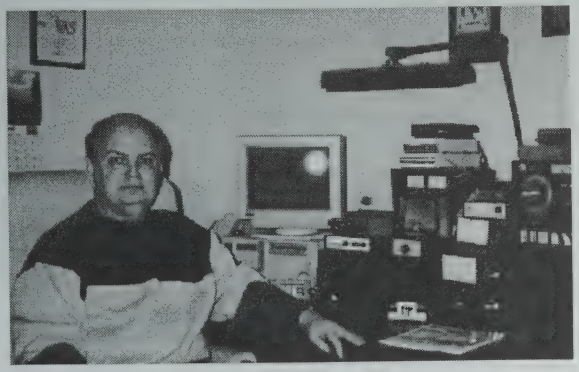
PARAGUAY, ZP - ZP2XD has joined the Pactor ranks and can be found on 14079 khz around 0215Z. QSL route is needed.

TURKMENISTAN, EZ - EZ8AX. countryman of the contest winning UH8EA, is a nice catch on 20 meters, around 1450Z, for this rare RTTY country. QSL route is needed.

TUVA - See ASIATIC RUSSIA above.

VENEZUELA - YV - Willy, YV1AQE, operates Pactor on 14079 around 2245Z. Willy likes to rag chew, and has lot of interesting things to tell you. WEST MALAYSIA, 9M2 - 9M2MW is regularly on 20 meters around 0800Z. QSL route is needed.

PROFILE OF A DIGITAL DXER



Have you been complaining about declining propagation conditions during the last year? Take a look at someone who ignored the naysayers. Bob, N4VZ (ex-W0VTZ) is a performer worthy of note. Here is his story in his own words. ".....I currently have all the DXCC countries worked and confirmed on CW and Fone. I have my 5BDXCC with endorsements for 12, 17 and 160 meters. I also have 5BWAZ and have WAZ #1 (mixed, SSB and CW; 3 separate awards) for both 12 and 17 meters, and #6 on 30 meters. So, in looking for new mountains to climb, I purchased a Kantronics KAM Plus and began pursuing RTTY DX on 4 March 1994. My first country worked was DJ2BW/FH on 15 meters, not a bad start!

I first begain operation on AFSK, but soon realized that I had better use the FSK capability of my TS-950SDX in order to take advantage of the narrower filters....man, what a difference - hi!

My goal was to reach a respectable 200 countries worked in one year. I successfully reached that goal on 7 February 1995, when I was able to put TN4U in the log. I then managed to log ZK1VDX for #201, J75A for #202, DP1KGI for #203, VP2MFM for #204, and on 3 March 1995, FR5HG for #205. I only lack Zone 26 for WAZ on RTTY. Not bad, I guess, considering this was accomplished at the bottom (sic!) of the sun-spot cycle.

My station is not a "big time" station. My antenna is a Sommer XP-507 at approximately 55 ft. Not stacked monobanders like some of the fellows have. I do have an Alpha 89 which I normally run at 500 watts.

I guess the most disappointing aspect of my operation has been the collecting of QSLs. They are just dribbling in, even though I have sent many direct requests. A case in point, I had a QSO with SU1AH on 20 meters on 29 April 1994 and sent him a direct QSL the following day. In December 1994, I happened to run across him having a QSO with a chap in Europe who was asking him why he hadn't gotten a QSL from him. SU1AH's response was that there were mail problems and if someone wanted to ensure that he would receive his card, it should be sent via registered mail. On 29 December I sent him a card via registered mail, but as of this writing (8 March...ed.) have yet to receive a response. It is expensive enough to collect these cards without having to send two or three direct requests. If those fellows won't QSL, they should come right out and say so on the air so that we won't bother sending them cards. I could cite at least a dozen more instances of lack of response to direct QSLs.....Keep up the good work on your DX column. It's the first thing I turn to when I get the Journal.

73 Bob Peterson, N4VZ

P.S. I'm definitely among those that believe that packet should be banned from HF."

Congratulations, Bob, on working 205 RTTY DXCC countries in 12 months. We expect you will soon be flirting with the RTTY Honor Roll.

HAVE DX NEWS?

Leave a Pactor message at W5KSI.#NOLA.LA.NA.USA mbx (1), or via any of the following:
Packet: W2JGR @ WB0GDB.#STP.MN.USA.NA
Amtor: WJGR on 14070 khz.
Internet: w2jgr@millcomm.com
Telephone: (612) 377 7269
New FAX number: (612) 377 3600 (mark for my attention)
USPS to my CBA.

THANKS - Thanks to the following for all your information: I5FLN, N4VZ, PP2ZDX, W5KSI, WB2CJL, WD6L, W9WU, N0FAC, NJ0M, NT2X, V73C, ZS5S, and OPDX/BARF-80.

See you all next month. For now, bye bye from Minnesota, PAX....

73 de Jules W2JGR

1. W5KSI scans 7069, 7071, 7075.5, 7076, 14068, 14070, 14073.5, 14074, 14079, 21074, 21075, and 21079 khz.

Contesting

Coming Events and Awards

by Rich Lawton, N6GG • 14395 Bevers Way • Pioneer, CA 95666

RTTY Contests - Coming Events

Date:	Contest:	
APR 29-30	SP DX RTTY	(Polish)
MAY 13-14	VOLTA RTTY DX	(Italian)
JUN 10-11	ANARTS WW Digital	(Australian)
JUL 2	DARC CORONA 10M Digi	(German)

— — REMINDERS: — —

BARTG SPRING RTTY (March '95)
log entry deadline is May 31, 1995.
Mail entry to:
JOHN BARBER, G4SKA
PO BOX 8
TIVERTON, DEVON, EX16 5YU
ENGLAND

EA WW RTTY (April '95)
log entries deadline is June 9, 1995.
Mail entry to:
Antonio Alcolado, EA1MV
Box 240
09400 Aranda de Duero
SPAIN

SARTG WW Amtor (April '95)
log entries deadline is June 10, 1995.
Mail entry to:
Bo Ohlsson, SM5CMG
Skulsta 1258
S-710 41 Fellingsbro
SWEDEN

— — COMING UP: — —

— SP DX RTTY CONTEST —
April 29-30, 1995
(4th full weekend in April)
Sponsored by: Polski Zwiazek Krotkofalowcow (PZK).
It is organized and run by Polish Radiovideography Club (PK RVG).

CONTEST PERIOD:
From 0000Z Sat. to 2400Z Sun. (48 hours)
Single ops allowed only 36 hours operation. No restrictions on length of rest periods.

MODE: RTTY only

BANDS: 80, 40, 20, 15, and 10M

CATEGORIES: A. Single Operator, All Band
B. Multi-Operator, All Band
C. SWL
D. SP stations

MESSAGE EXCHANGE: Send: RST + QSO number, starting with 001. SP stations send: RST + Province (2 letters)
NOTE: Polish stations will use a two letter abbreviation of their province. There are 48 SP provinces.

MULTIPLIERS: Count each DXCC country, including 1st QSO with your own country. Also, 1st SP station, and each SP province on each band. (Band Multipliers) Also, each continent (6) will count once, not once per band.
BONUS: "Special SP stations with suffix *RVG* will be "Joker" in multiplier (new country or continent.") To me this means if you QSO an SP station whose suffix is **RVG**, count it as new multiplier.

QSO POINTS:
- Count 2 points for QSO with own country.
- Count 5 points for QSO with other countries on your continent.
- Count 10 points for QSO with countries not on your continent.

FINAL SCORE: Total QSO points x total mults x number of continents (max 6).
SWL rules apply as above.

LOGS: Use separate log sheets for each band. Logs must show: BAND, DATE and TIME in UTC, CALLSIGN, MESSAGE sent and received, country multiplier and points claimed. Entries with more than 100 QSOs must submit duplicate check sheets. Multiple operator stations should include names and callsigns of all operators. We invite you to submit logs on computer disk. The format we prefer is CT.BIN file (K1EA), or RTTY by WF1B.

AWARDS: First place plaque to top winner in all classes, 1st thru 3rd place winners will receive certificates in each class and in each continent. NOTE: Awards will be issued based on participation of 20 or more entries in each class.

DISQUALIFICATION: Violation of the rules of the contest or taking credit for incorrect QSOs or multipliers, or duplicate contacts in excess of 3% of the total made, will be deemed sufficient cause for disqualification. The decision of the SP DX RTTY Contest Committee are final and not contestable.

DEADLINE: Logs must be received by 15 June 1995 to qualify. An extension may be granted if requested.
Mail logs to:
SP DX RTTY Contest Manager
Christopher Ulatowski, SP2UUU
P.O. BOX 253
81-963 GDYNIA 1
POLAND

COMMENTS: Sounds like a fun contest but this year it occurs on the Dayton Hamvention weekend. There are major rule changes from last year:
- Exchange no longer uses CQ zones. Instead use QSO number, starting with 001.
- Contest period now 48 hours instead of 36. No limit on rest period length.
- Count a BONUS multiplier when QSO with SP station whose suffix is "RVG."

NOTE: Everyone, mainly W/VE stations: don't forget to count 1 multiplier for your first domestic QSO *on each band.* Note the 10 points for off-your-continent QSOs. That means you have to work 5 locals to equal 1 DX station.

— VOLTA RTTY WW Contest —
May 13-14, 1995

Sponsored by SSB and RTTY Club of COMO and A.R.I. (Associazoine Radioamatrore Italiani) honoring Italian discoverer of electricity, ALESSANDRO VOLTA.

CONTEST PERIOD: from 1200Z Saturday, to 1200Z Sunday. (24 hours, no rest periods required)

BANDS: 80, 40, 20, 15, and 10M.

CLASSES: A1 - Single op, all bands
A2/xx - Single op, single band (xx = band)
B - Multi-op, single transmitter
C - SWL.

EXCHANGE: Send: RST + QSO nr. + CQ Zone nr.

MULTIPLIERS: DXCC Country List + each call area in VK, VE, and USA. DO NOT COUNT VK, VE, or USA as separate country. (USA stations with callsign from one district but are now living in a different district should give proper identification, such as: K6WZ/0.) The same multiplier counts again on a new band. An additional multiplier is given for each INTERCONTINENTAL COUNTRY worked on at least four bands. Contacts between

stations within the same country will not be valid, such as: A W2 station can work W1, W3, W4, etc. but not W2. Contacts made OUTSIDE one's own continent on 80 or 10M are worth double QSO points. A contact with a station that would count as a multiplierwill only be valid if that station appears in at least 4 other logs, or a contest log is received from that station.

FINAL SCORE = total QSO points x total mults (band mults + each INTERNATIONAL COUNTRY worked on 4 bands) x total number of QSOs. Use Exchange Points Table to determine points scored for each QSO.

AWARDS: A SPECIAL trophy will be awarded to the top stations in each class. In addition, a certificate with special sticker to all entrants.

LOGS: Use separate logsheets for each band. Logs must show: BAND, DATE and TIME (UTC), CALLSIGN and MESSAGE Sent and Received, POINTS and NEW MULTIPLIER PREFIX. Summary sheet must show full scoring, and list of multipliers worked.

Logs must be received by July 30, 1995, to qualify. Send logs to:

Francesco Di Michele, I2DMI
P.O. Box 55
22063 Cantu
ITALY

COMMENTS: This is a 24 hour contest. The QSO points are determined by the EXCHANGE POINTS TABLE. This table, based on the 40 CQ Zones, is arranged so that the further away the QSO is from your zone, the higher the points scored.

NOTES:

- **CQ zones DO NOT count as multipliers.**
- Since W/VE/VK call areas count as separate countries on each band, CQing will be the best way to make a good score for W/VE/VK ops. Band multipliers will spread out the CQing, too, and should make the low bands more active.
- Don't forget to try working DX on 40 and 80M, as QSO's with countries on other continents will increase your multiplier if you manage to work those countries on the high bands.
- QSO's outside your own continent on 80 and 10M are worth double QSO points.
- This contest uses the number of QSO's as an additional multiplier, and that creates astronomical scores... millions!

-+- -+- CQ vs. Search and Pounce -+- -+-

CQing, or hunting for CQ's... what's your pleasure? If pleasure means obtaining a higher score than your competition, then CQing is the more productive method. But competitive CQing implies that you have a better than average station, such as a quiet QTH, superior antennas, and some skills in handling more than one caller at a time. On the other hand, if you are more comfortable hunting for CQ's (and, by the way, improving your DXing skills) then your pleasure will come in conquering the challenges of "Search and Pounce."

To Search and Pounce efficiently requires a few unique techniques, learned best by experience. If you are on the steep portion of the S & P learning curve, take into account the following:

a) How does your station's capabilities compare with other callers? Antennas? Power? QTH?
b) Your propagation path to the CQer vs. your competition's path (how many hops, time of day or night, etc.)
c) Timing your call if there are many callers. In the DXing world, this is part of "*finessing the pileup*." There are lots of skills to learn and try in mastering DX pileups. For instance: When 2 or more are calling, recite; "*Hickory dickory dock. The mouse ran up the clock. The clock struck one.*" Then hit your callsign button. That delay will likely put your call in the clear as others are finishing their mutual jamming session.
d) Be sure to put a "DE" in front of your call. Lots of RTTY Contesters use "*RTTY by WF1B*" contesting software, especially CQers. The "DE" highlights your call on the CQer's screen. Then the CQer doesn't have to type your call. He simply hits the "Home" key to place your call in the QSO window.
e) Keep the length of your call short. Determine from those who beat you just how they did it. Was it the one who called longest? Or shortest? Or LOUDEST!
f) Should you call that weak, new mult station now, or try later on when your propagation conditions would be more favorable? I'd say, call now. If not, you run the risk of never crossing his path again.

CQing has its own brand of operating skills. What helps? Here's some hints:

1) A strong signal for easy-to-read contest exchanges. This implies a good antenna, a quiet QTH for hearing those w-e-a-k callers, good propagation conditions, and, usually, high power.
2) Make CQ's short, and often. And use "DE" preceding your callsign.
3) When you only get part of a caller's callsign, send that part twice with a couple of "??" and "AGN BK" to quickly move things along.
4) When you think you've found an open spot in a crowded band, send "QRL?" (Is this frequency in use?) It's the classy, sporting, and considerate way to claim a spot to call CQ, and should leave no ill feelings in case you should jump on top of some QSO whose "other station" you're not hearing. By the way, the answer to "QRL?" is to send "QRL." (This frequency is in use.) "QRL?" is very popular on CW and SSB, but not used nearly enough on RTTY. One primary reason: other digital modes are claiming the same frequency, and can't read RTTY - a BIG problem. Obviously, a bandplan agreement would solve this.
5) Directional CQ's really work. It's an enticement that often gets the multipliers you need. It accomplishes two things. First, it reduces the number of callers from places (mults) you've already worked. Secondly, it encourages the low power ops in those areas you need, to call you. Note: too many directional CQs in a row can cost you your pileup of regulars, too...

When is the best time in the contest for CQing? I'd say at the very start. Reason? You've grabbed a spot on the band and you are attracting those who are still tuning around, checking band activity. (Activity/propagation check should be done before the contest starts. See below.) More hints: Keep track of the time of your last QSO. If you've had no replies during a 5 minute period of calling your short CQs, consider tuning for another spot, or, try some S & P. Also, you might take a quick peak at the other bands to check activity. And finally, turn the beam to another direction that could produce new mults. Remember, if your thing is a big score, don't spend too much time on S & P - unless you're really down on mults. However, as you look for a new spot you could find a few rare mults, coming from those unique places where CQing is a way of life.

And what about calling a bunch of CQs on a "dead band?" Is it really dead? Well, calling CQ on a completely dead band is a big waste of time. How to tell? I've found a reliable scheme that works for me. Using a non-directional antenna (one for another band will usually do), quickly tune around the low end of the CW segment of that band. If the band is open you should find Extra Class ops engaged in short QSOs, signing their calls often, and some working DX. Their quick identification by callsigns tells a lot about propagation. If the low end of any CW band is dead, the whole band is dead, and CQing would be fruitless.

((73))

See you in the pileups,

Rich, N6GG

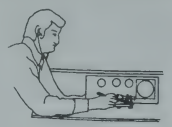
P.S.

Drop me a line with an idea to share,
Or, drop me a line with an item to air.
Drop me a line with anger to bare...
But don't drop ME... 'cause I care!

Coherent CW

Another Digital Mode!

by Ray Petit, W7GHM
P.O. Box 51 • Oak Harbor, WA 98277



The history of short-wave radio communication has been marked by two correlated trends; progressively more efficient use of spectrum space and progressively higher frequency stability and precision. Spark was replaced by CW; AM voice was replaced by SSB. Wide shift RTTY went to narrow shift. These advancements required better frequency control and they communicated more successfully with signals having narrower bandwidth.

The famous myth that CW had zero bandwidth was erased long ago. And the relationship between the rise and fall times of the CW envelope and the amount of "key click" sidebands generated has been well understood for decades. But CW practice is still way behind the possibilities. The transmitted signal has key-click sidebands much wider than necessary, and CW receive filters (with the possible exception of the new DSP unites) are still often ten times wider than they need be. True, the human ear and mind are excellent filters and decoders, but can easily be overwhelmed. Who can copy and S1 signal in the presence of an S9 signal only 100 Hz away?

In the early 70's I became fascinated with the possibility of communicating via Morse in the narrowest bandwidth allowed by nature. With narrower bandwidth per transmitted signal, there is less congestion and QRM, and therefore more space for everyone. Narrower bandwidth in the receiving filter also removes more of the noise, making a weak signal stand out more distinctly.

Elementary Fourier analysis showed me that a Morse "dit" at 12 words per minute (a 100 mSec rectangular pulse) would have a 3dB bandwidth of only 9 Hz, spectrum nulls at multiples of 10 Hz from the center and sidelobes having gradually decreasing maximums at points midway between the nulls. Key-click filtering such as in present use reduces these spectrum sidelobes modestly. The best filter for receiving such a pulse is one that reports the average of the signal voltage obtained DURING THAT PULSE INTERVAL from the output of a product detector having its local oscillator ZERO BEAT with the incoming signal. The selectivity curve of this filter is identical to that of the 100 mSec "dit" pulse. (In practice, two product detectors and two averagers are used. The local oscillator signals to the product detectors are in phase quadrature. The outputs of the averagers are considered to be vectors at right angles. The filter output is the magnitude of the vector sum).

The two conditions emphasized above are the cause of the high frequency accuracy and stability requirement and the precise timing requirement of CCW. Charles Woodson W6NEY, who published a newsletter for CCW enthusiasts in the beginning, coined a widely quoted proverb, "The more you know about the signal you want to detect, the better are your chances of finding it." If you know WHEN each pulse could begin or end, and you know WHERE it is (its exact frequency), you have the best opportunity for detecting it.

No equipment available to amateurs had the frequency stability or accuracy for CCW, so only the home-brewers could get on CCW. I pushed the idea that the first thing every CCW stations needed was a good frequency standard. Then the home-brew gear needed to have every oscillator phase-locked to the standard. Andy McCaskey WA7ZVC, modified a Ten-Tec direct conversion transceiver for phase-locked operation to his standard and I build a fixed frequency transceiver from scratch. Both of us used the original "Petit filter," made from IC op amps and CMOS logic. The first CCW communications took place between Andy and me on 3550 kHz over a path of about 100 miles.

Woodson had friends in Japan who built and installed a 60 milliwatt CCW beacon on top of a skyscraper in Tokyo. Charlie was able to copy this beacon at his Berkeley home for hours at a time. He surely must have had help from the sunspots! Other notables in my recollection are Jim Maynard K7KK, Bert DeKap VE3DPD and Don Gross W3QVC. These CCW pioneers built their gear, worked each other, published articles and made many ham club presentations.

CCW soon attracted the attention of Adrian Weiss, the QRP columnist for CQ Magazine, In the late 70's he published a two part series enthusiastically describing our work. At one point Woodson's newsletter had about 500 subscribers. But almost none of them got on the air, and my commercial enterprise of selling Petit filters and frequency synthesizers for CCW went broke.

CCW was not to have a revival until Peter Lumb G3IRM, the Digital Journal's new CCW columnist, began promoting it in Europe. The present interest is due almost entirely to Peter's untiring effort and it has motivated the production of two new computer based CCW filter products.

FUTURE POSSIBILITIES

The original CCW signal format can be improved upon. Despite the extremely narrow bandwidth of the signal's central lobe, the sidelobes are large and they extend away from center for hundreds of Hertz before dropping to say, 60 dB. Additionally, the Petit filter has poor dynamic range. Both of these limitations can be removed easily.

Designers of CW transmitters have always faced a tradeoff between spectrum economy and readability by ear of the Morse signal. The key to both is the transition from "off" to "on" and from "on" to "off in the Morse dit or dah. If the carrier can be turned on and off in a smooth, gradual manner, the signal spectrum will be very compact. But it is also rather difficult for the ear to read, especially if there is noise and QRM. And if the transition times are too slow, they limit the code speed. But in CCW the receiving filter regenerates the dits and dahs. The limitation on transition times can be removed if the receiving and decoding can be done electronically instead of by ear. This paves the way for a CW signal format having no key clicks at all, the ultimate in spectrum economy.

At a Morse code speed of 5 words per minute the transmitted signal could be contained entirely in a bandwidth of only 50 Hz, using a program which could be run on your PC using a sound card. This means that there would be space for 20, repeat, TWENTY QSO'S in a spectrum segment ONE KILOHERTZ WIDE! Even if a neighbor signal was much louder than the signal you are reading there would be no interference because they 20 signals don't overlap in spectrum. (I assume no RF, IF or Audio stage in the receiver is being overloaded). The 16 bit digital-to-analog and analog-to-digital converters in the sound card would provide superb dynamic range, above 90 dB.

The receiving filter would be similar in principle to the original Petit filter, but would be done in software on your PC. This filter would have a response identical to the spectrum of these optimized CCW signals. It could either regenerate the familiar dit and dah sounds for reading by ear, or the program could decode the Morse automatically.

This optimized CCW format would be tolerant of frequency offsets between transmitter and receiver up to about 10 Hz. Thus, any modern transceiver would be useable.

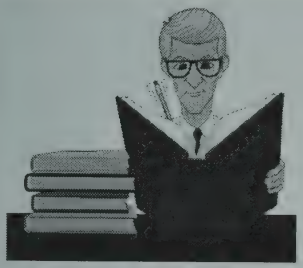
Does this sound interesting?

De Ray W7GHM

Lew McCoy on Antennas

A Book Review

by Dale Sinner, W6IWO • 1904 Carolton Lane • Fallbrook, CA 92028



Since first licensed in 1952 I have had an interest in antennas. Most of my first Ham years were spent in houses situated on small lots that did not leave much room for an antenna. In the Los Angeles area the problem is still prevalent. During these early years I experimented with many different types of antennas that I gleaned from QST and CQ magazines or from the ARRL Handbook. I had lots of fun. One of my early transmitters was a military surplus job that had a P-Network output. This transmitter would load anything that resembled an antenna. However, with all my experimentation I was never really successful on the air. Some of these antennas were low angel radiation designs while others were modified versions of the dipole. Everyone starting out in Ham radio needs an antenna to operate successfully. They should also understand antennas and how they work. Modern day equipment for testing antennas are really great but they don't tell you why your antenna is or is not working. That brings me to Lew's book.

This book is by far the most comprehensive yet easiest understood antenna book I have ever had in my possession. Lew does an outstanding job of explaining the fundamentals of antennas in a way that all can understand. Whether you are an experienced antenna designer or a brand new Ham, this book should be a part of your antenna book collection.

Lew says the majority of Hams are not technical engineers and therefore his goal was to write a book that was not only understandable but useful. If a much more technical understanding of antennas is your goal, then the ARRL Antenna book is for you. However, it is my feeling that this book can be a good refresher for even the most knowledgeable.

Right up front the book starts with some basic facts about antennas. How is the impedance of an antenna determined? You'll find out in chapter one. How well do you understand radiation resistance and reactance of an antenna. These basic facts all affect how your antenna is going to perform.

I thought I understood SWR pretty well but Lew covered some items that I did not fully understand. Matching the feed line to the transmitter is the secret to your antenna working correctly. Too high an SWR and you can smoke your feed line, create havoc with your final amplifier, and end up with lots of power lost before it gets to the antenna. If you have this problem now, you probably also have lots of neighbor problems from TVI. But SWR if properly understood, can help you obtain maximum output to your antenna. Chapter two is very complete in explaining what influences the SWR of an antenna. Don't have a sleepy eye when you read this chapter.

That illusive *Jezebel, the Decibel* has been know to corrupt a man's mind. It has been said that some men would kill just to gain another decibel of gain from there antenna. But, the price alone of an antenna does not guaranty superior gain that is measured in decibels. If you double the power in one direction, do you get a 3dB gain in that direction? Find the answer in Chapter three. How much do you understand about open wire transmission lines? In today's world we can now find good open wire line where years ago it was not available. Some antennas use open wire line and with great success and open wire transmission lines have very low losses compared to coaxial lines under certain conditions. Maybe you already knew this but, if you didn't, then very definitely, you need this book. Still, nine chapters to go and, by now, I have gotten my money's worth from this book.

Maybe after using various methods of obtaining a good SWR you still haven't any improvement. If so, then it is time to consider an alternative. Lew suggests a Transmatch device. A Transmatch, is sometimes known as an RF transformer and reactance equalizer. You may think because a 50 ohm line is connected to your transmitter, you have a 50 ohm impedance input. This may not be the case and Lew makes this point quite clear in Chapter four. You will also find a number of Transmatch designs discussed along with the methods of installing and tuning them. Many antenna designs qualify for Transmatch use, but a thorough understanding is essential before attempting to use one. Other methods of matching transmitters to feedlines and antennas is also discussed. Lew ends this chapter with an explanation of balancing transformers and baluns.

In Chapter five Lew gives a brief description in the use of wire antennas that leads into Chapter six on feed-line radiation problems. Almost every one of us has experienced some type of RF problem and Lew gives some excellent ideas on how to solve such problems. By the time you reach Chapter seven you should be ready to get serious about a particular type of antenna.

To understand antenna designs, Lew starts by teaching us about a simple dipole then works his way up to more complicated types. Throughout Chapter seven and Chapter eight antennas of many types are discussed in simple detail. Again let me stress, nowhere in this book do you find terminology used that makes understanding antennas complicated. Lew's choice of words and simple explanations are the secret to this book's value.

Extensive use of pictures and drawings help the reader throughout the book. Even antenna patterns are shown for certain designs. Some antenna comparisons are also given. If you are considering a new antenna for your radio station, Lew gives you all the choices by covering many different designs. i.e. wire antennas, verticals, Yagis, quads, and multiband arrays.

Chapter eleven discusses VHF antennas and Chapter twelve covers a number of multi-band mobile antennas.

Whether you are planning a new antenna now or in the future, I suggest you buy this book as a easy reference guide and handbook to help you decide not only what antenna to buy or build but some of the pitfalls that you might encounter on your way to a better, more potent signal.

As I mentioned up front, I have always been interested in antennas and now I have the book I need to help with any future antenna projects I get involved with around here. Besides, after reading this book I think I can hold my own a lot better in a conversation on antennas. *My opinion.* Yes, this is a good buy.

Lew McCoy on Antennas: Available from
CQ Communications, Inc.,
76 North Broadway, Hickville, NY 11801

DIGITAL DIGEST

News, Views, Bits & Bytes

Edited by Tom Arvo, WA8DXD • 4340 Watermill Ave • Orlando, FL 32817
CompuServe ID: 73330,1335 • Internet: arvo@magicnet.net

Remote Control Comments

Howard Krawetz N6HM
CIS 73112,717

Like many people interested in digital modes who would like to do more with their computers, I read with much interest the recent software reviews in the Digital Journal concerning remote control programs. Yes, I liked the idea and wanted to remotely control various devices such as switches, transceivers and also remotely monitor the status of various sensors. So I purchased a software program call REACHOUT REMOTE CONTROL PRO EDITION (modem version) produced by Stac Electronics in Vero Beach, FL.

My version of this program is used on an IBM clone., It worked very well right out of the box. When you install the program, it checks your computer to see if you have Windows. If it finds Win3.1, it installs both a DOS version and a Windows version. Otherwise it will dutifully install just the DOS version. You are then given several choices. For example, you may install the program as a Host, Viewer or both. The program allows you to install extensive sophisticated security precautions. Not all the security is required but the program does require you to install a certain minimum amount of security in order to function. You have to protect yourself from yourself!

I set my system up with a Host call-up routine in Autoexec.bat file to activate the Host at boot-up. The modem is set to answer on the first ring. The software will operate at anywhere from 1200 baud (if you want real slow motion) to 115.2K baud. I have set the Host to automatically reboot the machine upon disconnecting from any Viewer. That way I always have the same starting base line when connecting remotely.

The Viewer certainly gives one a certain sense of power over the Host when you see the remote computer screen and realize you are controlling that machine from your keyboard.

I learned a lot while setting up the system. My intention was to use this program with a packet modem to remotely control functions and monitor switches at a remote repeater site. After many trials and much effort, I found that none of the remote control programs would perform this function using standard packet modems. After talking to several local hams and Peter TY1PS, I found that none of these programs would operate in simplex or semi-duplex. Since I did not want to dedicate two full duplex transceivers to this effort, I resorted to the telephone line and used the software as designed.

I have also installed a relay board consisting of eight independent relays and eight independent monitor ports. The ports are non-polarized, insulated at up to 500V AC or DC, and can monitor the condition of various sensors and power supplies. The board is made by ComputerBoards, Inc in Mansfield, MA 508 261 1123). With this board I can turn the remote ATV system on and off, and also poll various sensors.

The Reachout program is easy to install and easy to use. The relay board is easy to program. I am not a programmer, yet was able to write a rudimentary BASIC program to control the relays.

If you want a feeling of power and control, just set up one of these systems and have a fun ego trip.

73 de Howard, N6HM

Note: Howard's Basic program is available directly from him. It will be published next month.

A Call for Standard Pactor MBO Protocols

1. AMTOR MBO protocols have used APLINK/PAMS as a de facto standard for message forwarding. WINLINK and AA4RE have AMTOR modules that are compatible with APLINK.

2. There are no documented standards for PACTOR MBO protocols. WINLINK, MSYS, and AA4RE have PACTOR modules that are not compatible with each other, although they supposedly each match 'packet standards'

3. There are no documented standards for G-TOR MBO protocols. MSYS has a G-TOR MBO module. WINLINK and AA4RE may soon follow with G-TOR capabilities. The G-TOR system is already a part of KAM terminal units, and will be included in an upgrade to the MFJ terminal units. The AEA PK-232 may soon follow with G-TOR capability.

4. Request that ADRS, as the central organization addressing amateur radio digital matters, establish a working group or committee to develop and document acceptable standards for PACTOR and G-TOR MBO protocols, such as has been done in the past for packet radio systems.

5. I have operated a Aplink station and now operate a Winlink station. The primary problems I am experiencing are, the SID and the FORWARDING PROMPT when trying to connect to a bbs's other than Winlink in pactor. I would appreciate any information that can be provide pertaining to what is standard on these problems.

73 de W.M. Menard, Sr., K5YDE

ADRS INTERNET ACCESS

ADRS announces new WWW and FTP Internet sites:

ADRS WWW Site at: http://www.iea.com/adrs

ADRS FTP Site at: ftp.iea.com/public/adrs

The American Digital Radio Society (ADRS), publisher of the Digital Journal, is pleased to announce its new WWW and anonymous FTP site addresses now available for use by its members and others in the world wide ham radio community. The ADRS WWW and FTP servers are at a commercial site with very high capacity connections to the Internet network so that you should encounter no difficulties or delays in connecting!

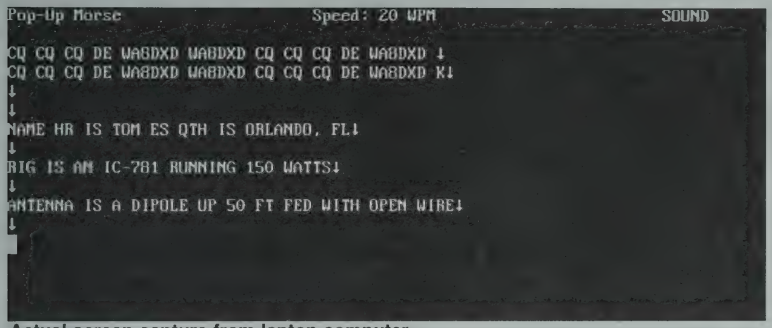
The ADRS Web Pages describe and give information about the ADRS, its publications and services, and contain what is now probably one of the most complete set of hyperlinks connections to other amateur radio related WWW sites and related Internet sites worldwide! You are invited to visit the ADRS WWW Pages at: http://www.iea.com/~adrs to learn more about ADRS and as one of the best starting point for exploring amateur radio on the Internet! To use the ADRS WWW site, you need will need an access to the Internet which permits you to use Mosaic, Netscape or a similar Web Browser which provides HTTP (Hyper Text Transfer Protocol) capability. (The new Prodigy Internet WWW Web Browser was tested and performs well.)

The ADRS Anonymous FTP server contains software libraries which mirror much of the software which is available on ADRS' BBS, including the latest versions of special software available only from ADRS. Files on the FTP server are downloadable. You are also invited to visit that site at: ftp.iea.com/public/adrs. An extensive listing of other amateur radio Anonymous FTP sites with hyperlinks to those other FTP sites worldwide is also included on the ADRS WWW Pages at: http://www.iea.com/adrs. To access the ADRS FTP site, you will need an Internet access over which you can use an FTP client to transfer files using FTP (File Transfer Protocol).

POP-UP Morse

A Software Review

Reviewed by Tom Arvo, WA8DXD • 4340 Watermill Ave • Orlando, FL 32817
CompuServe ID: 73330,1335 • Internet: arvo@magicnet.net



Actual screen capture from laptop computer

Here is an interesting program that came across our review desk. It is not only interesting from the standpoint of what it is, but also from the standpoint of its inception. First, the inception. Pop-Up Morse is a program that has been totally developed and marketed by two people who have never met (at least to the time we received our review copy). In his correspondence to us, Pete Smith, N4ZR explained that Pop-Up Morse was a corroborative effort between himself and Gordon Miller, KE9IA... who met on the Internet. While conversing on *the Net* they discovered their like interests of software writing and mutual pursuit of generating perfect CW. Thus, their collaboration had begun, keyboard-to-keyboard in the development of Pop-Up Morse. Pete explains that Gordon was the programmer behind Pop-Up Morse while he wrote the manual, and manages the marketing and distribution. In essence, the Internet was the thread that weaved a business venture for two hams who had never met other than through their computers! As Pete put it in his finishing remarks... "How's that for a 21st Century partnership?"

POP-UP MORSE

Would you like an inexpensive way to experience the fun and benefits of computer generated, keyboard CW without having to go full bore with a multi-mode, multi-wire tnc requiring sophisticated software? If so, read on.

Pop-Up Morse is a program designed to work on any IBM PC or clone, with any CPU from 8088 on up. Its disk space and installation requirements are minimal-taking up less than 5K on your hard drive or can be run from your floppy disk drive. The screen display is configurable to suit any monochrome, LCD or color display. CW may be sent via any serial port (COM 1-4) or parallel port LPT1-3).

Interfacing

To be able to key your rig, Pop-up Morse requires a "CT-Type" interface. So called because it was developed and popularized by Ken Wolf, creator of the "CT" contest programs. The interface is extremely simple, consisting of only a transistor and resistor which can be wired into the shell of either a serial or parallel connector-depending on which keying method you decide to use. Included in the 13 page printed manual supplied with the program are two schematic diagrams of interfaces you can construct. The manual also mentions interfaces commercially available. *[We built the parallel interface from the schematic provided in the manual in all of about 10 minutes, at a cost of less that $5.00 in new parts purchased from Radio Shack —Ed]*

Would you like an inexpensive way to experience the fun and benefits of computer generated, keyboard CW . . . ?

Operation

The reason for the name? Well, Pop-Up Morse can be run by itself or as a TSR program. Invoked as a TSR, Pop-Up Morse will stay resident on your computer, using only 8K of RAM, ready to "pop-up" in an instant. This is a great feature if you also use your computer for logging or any other purpose. With this feature, you can have your computer log up on screen and in an instant activate Pop-Up Morse for sending. When done sending, you can again instantly be back to your logging screen to fill in the info attained from the qso. Toggling back and forth between Pop-up Morse and your log is a simple "hot key" combination. Alt-Esc will activate Pop-Up Morse with a full screen display (see screen capture) and Alt-X (or Ctrl-X) will return you to the log.

Once you have Pop-Up Morse on screen and your "CT" compatible interface connected you are ready to send CW. The speed defaults to 20 WPM (but can be configured to a different value). Speed range is from 10 to 80 WPM set in 2 WPM increments simply by pressing the Up or Down arrow keys on the keyboard. A keyboard map, enclosed with the program gives the locations of all the standard English-language characters, along with Morse prosigns (SK, BT, etc.), and a number of special characters required to send Morse Code in foreign languages. As stated in the manual, "... for those truly inclined to linguistic adventure, even the full Russian alphabet." The eight dot "ERROR" character may be sent by using the "backslash" key. The program has quite a large type-ahead buffer. If you discover you have made a mistake in typing, and the character hasn't been sent yet, you can backspace to the mistake, make the correction, then continue with your typing. Pressing F10 will pause a transmission, pressing it again will resume.

Additional Pop-Up Morse features include eight 50 character memories assigned to function keys F1-F8. These memories are easily stored and activated. The memories can be edited within the program or with your favorite text editor. Some uses for the memories could be to store certain messages that you tend to send over and over every time you start a qso. For instance, as shown in the graphic, one memory could store a CQ & Callsign, another your name and qth, another your rig and antenna, etc.

We've run out of space, but the bottom line is that if you've had the desire to send perfect CW on a keyboard... with a minimum of muss, fuss or investment, Pop-Up Morse just could be for you. Price is $29.95 postage paid. For more information or to order (specify disk size), send your correspondence to:

Peter Smith, N4ZR
N4ZR Software
RR1., Box 459 • Kearneyville, WV
25430-9778

Pactor-II Notes and Comments

(see also the Last Word)

Here are some results of early tests. These were apparently exchanged between DF7ML and the DJ0OW BBS. The tests took place on 31 March and the messages were all ".txt" files including the headers. The signals ran about S-9 with no QRM (almost ideal circumstances—ed.). It was notes that the times were not recorded by a stopwatch so the times are only "about" correct. The six messages moved as follows:

6.063 kb in 1 1/2 minutes
5.610 kb in 1 minute
4.490 kb in 1 minute
2.071 kb in 1/2 minute
6.698 kb in 1 1/2 minutes
25.000 kb in 10 minutes (with little QRM).

Rudolph 7Z1AB sysop reports that "I just sent a 3 kb file in 1 minute to Europe. The signal was only S1-2 and the Sunday RTTY QRM was present. But then also reports an 8 kb transfer that required 10 minutes. He is excited about the product, "Today I received the PTC-II. It is a masterpiece of technic."

He also reports the following stations QRV on Pactor-II (all frequencies are Mark):

DL2FAK	14.079	
DF7ML	14.079	7.039 Stand-alone BBS
DL1FAN	14.082	7.039 3.593
DJ0OW	14.079	
EA5FIN	14.080	
KB8LUJ	14.079	

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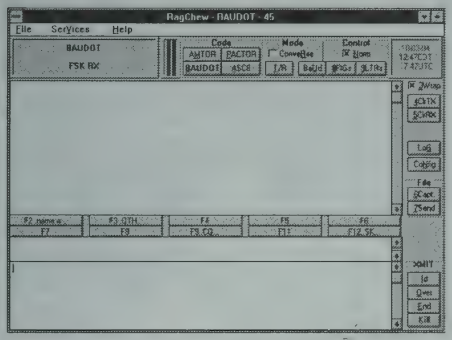
❑ EXPRESS 2.0 - for Clover

EXPRESS 2.0 Software for Clover (requires HAL PCI4000). Send stunning full color graphics, digitized voice, run a full Clover BBS; all while using the best keyboard QSO software available anywhere. Available exclusively from ADRS. $25 to ADRS members, $50 all others.

❑ PakTERM - for PacComm PTC

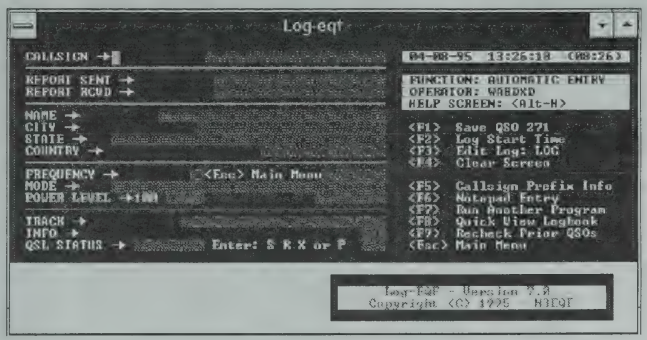
PakTERM takes your PacComm PTC to its limits while making your life easier with an assortment of automated features. You simply won't find a better DOS based PTC terminal program anywhere! Only $30 + $5 s/h. Callsign and disk size required with order.

❑ Ragchew -
Windows software for your HAL card

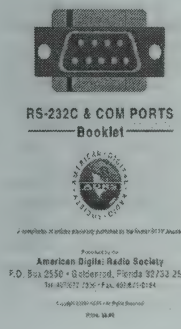


Jim Jennings, KE5HE developed this exciting multi-mode Windows software for your new HAL card. Send RTTY, AMTOR, and PACTOR from the same easy-to-use and friendly interface. Available in station-license form, only from ADRS. $25, postpaid anywhere in the world, for members. $50 for non-members.

❑ Log-EQF -
Your complete computer based logging/control system



Log-EQF Version 7 is the total control center for your on-the-air activity. Features easy logging, data terminal, PacketCluster(tm), rig control, beam-headings, QSL labels, DXCC, WAS, and more. Log-EQF is a DOS program that runs on any IBM-compatible PC. Also works great as a DOS application in Windows. Registered version: $30, postage paid for ADRS members.



❑ RS232C & Com Ports Booklet

If you are using a computer in conjunction with ham radio, you will find this booklet an invaluable tool to have in your shack. The booklet contains information about COM ports 1,2,3,4 as well as RS-232C. Cost $5.00 postage paid.

Save Time!
Check off the items you want and fax this page with credit card order information below to:
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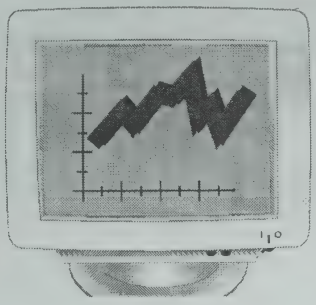
❑ SNAP - Makes DX propagation prediction easy



Propagation Prediction? With this new DOS utility it's a "SNAP" Instead of guessing if a radio path is open at a specific time/frequency, just call up SNAP and you'll quickly know where and when to make that QSO. Written by Crawford Mackeand, WA3ZKZ exclusively for ADRS. $15 for members. $30 for non-members. Postage paid anywhere in the world.

❑ Basic Packet Radio - (Second Edition)

New in the 2nd edition — updated information based on the comments and suggestions of readers including a chapter on operations via Internet Wormholes and & LAN-LINK 2.30 documentation. What packet radio is. What it takes to use it. The Local Area Network (LAN). The Packet Bulletin Board System (PBBS) and how to use it. How to Send and Receive Messages & Bulletins. The distributed LAN. Extending your range via Nodes. Packet Clusters. Servers: Dumb and smart. ELMER The ham's expert system. LANLINK manual and evaluation disk. Price: $29.95 + $2.00 s/h. *State disk size. ___ 3.5" ___ 5.25"*

Name_____ Call _____
Address_____
City _____
State/Country_____ Zip/P-Code_____

Total Amount $ _____
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_____
Exp. Date _____
Signature :

Digital Operations

A Report on the VP8SGP DXpedition

by Jan A. Heise, WA4VQD(VP8CRB) • 131 Sand Pine Rd. • Indialantic, FL 32903

VP8SGP RTTY and CW Station used primarily by Jan, WA4VQD (pictured). Station consisted of Yaesu FT-990, Ameritron AL-811, MFJ tuner, AEA PK-900 and 386PC for RTTY. CW added AEA MM-3 and Kent paddle with 486 laptop. Station was in a cold dark corner of an abandoned workshop. -- Photo by Al Hernandez - WA3YVN

Before I forgot the details, I thought that I would document some notes from the VP8SGP Dxpedition and share them with the readers of the DIGITAL Journal. When we shipped the equipment last June, we were well equipped for digital operation. We had the opportunity to ship a small PC with a color monitor. We had two AEA PK-900's, with Yaesu FT-990's and FT-1000 HF Rigs, and an Alpha 76 to give us the power we needed for low band and digital operations. I also pre-loaded the WF1B RTTY software on the PC before shipping.

To get to South Georgia Island the team consisting of Al Hernandez - WA3YVN, our team leader, Vince Thompson - K5VT, and myself, flew from Miami, FL to Punta Arenas, Chile via Santiago. We spent a couple days in Punta Arenas before flying to Stanley in the Falkland Islands. That flight only goes once a week, so we had to get to Stanley a week before the ship left to be able to get the equipment ready. From the Falklands it was a four day trip on the Research Vessel ABLE J to get to South Georgia Island. The return trip was the reverse, and it gave us new meaning the saying "you can't get there from here." Also, the bad weather we encountered on the 110 foot ABLE J coming back led us to the conclusion that getting there was definitely NOT half the fun.

During our stop in Punta Arenas we were hosted by Alex, XQ8ABF and Louis, CE8SFG. Louis enjoys operating RTTY and has a well equipped station. He runs an ICOM 735 radio into a Kenwood TL-922A linear and Hygain TH6. He uses an AEA PK-900 and 486PC for digital operation. During our initial meeting we discovered that we had both been in the recent CQ WW RTTY contest. When we got together the next day he presented me with a QSL card confirming a contest contact which I did not realize we had made. He wanted to know how I had been able to make over twice as many contacts in less time than he spent in the contest. I introduced him to the WF1B RTTY software, and he fell in love with it. When I returned to the states I bought him a copy which Ray shipped him and he should have up and running. Louis alerted us to the fact that the QSL Bureau down there is not very reliable. He will definitely QSL to cards sent to his CBA.

While in the Falklands, we wanted to maximize our low band and CW operations, but we did meet operators who are active on the digital modes. Bob, VP8BFH has been quite active in the past, but recently his antenna has been down. Steven, VP8CIL operates various digital modes on a regular basis and one can sometimes find Peter, VP8WA as well. There are less than ten hams in Stanley who are active on the HF bands and we were fortunate to visit with all of them. None of them were running linear amps and they did not have rotors on their beams. Due to the frequent high winds, most of them have their antennas up about 30 feet and locked in pointing North or toward Europe. Actually, Stanley favors the North. It is situated on a hill which slopes down to the bay with no obstructions to the North. However, this makes working Asia a problem. Almost all the Hams we visited have digital capability, but not all of them have been active on those modes on HF. There have been several military personnel who have been active for periods of time from the Falklands, but due to their transient nature it has often been hard to get QSL cards. The VP8 QSL Bureau has had some problems with this over the years, but recently I understand things have improved.

The other scientists who had the primary charter on the ship arrived in the Falklands on 30 December. Unfortunately, we found out that due to commitments back in the states, our stay on the island would be cut short by four days. As a concession they allowed Bob, VP8BFH to go with us. Bob had been a crewman on the ABLE J when Al and the team went to VP8SSI, and we felt he would be a big asset helping us set up and the day-to-day operation of the camp. We arrived on South Georgia Island in the early morning hours of 4 January. We spent two days setting things up and started out operating with Al primarily on 20 meter phone, Vince and I on low band CW, and Bob tuning for openings on 17M and 15M.

Louis - CE8SFG (right) surprised Jan by presenting him with a QSL card for the 1994 CQ WW RTTY contest. Louis hosted the VP8SGP team in Punta Arenas, Chile and allowed them to operate from his station. Louis is one of the few hams active on RTTY in Chile. -- Photo by Vince Thompson - K5VT

Bob and I were anxious to set up the RTTY station, and we did that on 6 January. The computer we shipped and the digital equipment all worked fine. Unfortunately, the Alpha 76 was damaged in shipping and we had to use a lower power Ameritron 811A amplifier. We came up on RTTY on 40 meters using the Cushcraft two element beam during the ARRL RTTY Roundup. We had trouble working split on 40M due to heavy QRM from the contest. I introduced Bob to the WF1B software and we worked 40M as long as it held out. The next morning Bob and Al caught a short opening to Asia and worked some JA's on 20M. In order to maximize our phone and CW contacts we set the RTTY operation aside for a couple days.

As time went on I became concerned that we would not get a chance to operate any more RTTY. Propagation was poor and 17M and above were hardly ever open. Our prime objectives were low band CW, and to give as many people a first contact as possible (20M SSB). Hence, I suggested that we try RTTY on 30M. I know that this surprised a lot of people, but it was the only band which we had available. In the evening for a few days we had Al on 20M phone, Vince on 40M CW, Bob on 80M phone and me on 30M RTTY. In these cases I actually ran part of the time on low power so Bob could have the amplifier. We used a Radio Works 30 meter delta loop up about forty-five feet as an antenna. We did run into a surprise when we went to use 30M. WF1B is primarily set up for contesting and does not have a 30 meter logging option. We impro-

(cont'd on page 27)

RTTY From Syria: YK0A

A first for a group of eight operators

by Glenn Vinson, W6OTC • 36 Presidio Ter • San Francisco, CA 94118

The ruins in this articles photos are of Palmyra, the oasis that I mention toward the end of my article. This site, covering some 50 hectares, is more than 100 km from any other significant source of water, and was an important Greek outpost, annexed by the Romans in 217 AD. Its source of wealth was its imposition of duties on all caravans passing along the established trade routes to and from Baghdad in need of water, fruit (such as dates) and other provisions. Most of the ruins date to the first two centuries AD, though some are earlier. Although Palmyra is Syria's prime tourist attraction, we found ourselves almost alone while walking through the ruins with our guide.

In November, 1994, a group of eight operators became the first foreigners duly licensed by the Syrian Telecommunications Establishment (the "STE") to operate ham radio in Syria. During seven days of operation, 14,444 QSO's were made (net of same band/mode duplicates), consisting of 12,719 on CW, 1,010 on SSB and 715 on RTTY. This trip resulted from more than two years of intensive efforts by team captain Rusty Epps, W6OAT and his Syrian counterpart, Omar Shabsigh, YK1AO (who also serves as head of the Syrian amateur radio society). Once the appropriate license was issued and reviewed by ARRL, Rusty, a veteran DXpeditioner and contest operator, timed the trip to coincide with the CQWW CW Contest weekend in order to maximize the opportunity for the deserving to work Syria on CW. In addition, because of Syria's rarity on RTTY, Rusty also wanted YK0A to make a strong RTTY showing; I was lucky to be asked by him to lead that effort. This article will focus on the YK0A RTTY operation from Syria.

Our group consisted of WA2TMP, K3NA, K6ANP, W6OAT, W6OTC, NW6P, N6TV and W0YK. We all arrived in Damascus via Lufthansa on the evening of Monday, November 21, where we were met by our host, Omar and by Marwan, YK1AU. Omar is an electronics engineer and former general in the Syrian army, while Marwan is a 33-year old USC-educated biomedical engineer. They took us and our large mound of luggage from the airport to the Al Jalaa Cham Hotel, located about one mile from our operating site. Through the good offices of Mr Obied, the head of STE (and the person who signed our license), Omar had arranged for us to operate from a large room on the third floor of the STE Training Center, and to use its roof for our antennas. On the way to the hotel, we drove passed the Training Center for a quick look at our new QTH. We then spent the remainder of the evening with Omar over coffee and beer, receiving a final briefing on Syrian ham radio regulations and planning our other activities for the coming week.

Daylight hours on Tuesday, November 22, were occupied in clearing our air-freighted equipment through customs (by our diplomats, W6OAT, NW6P and YK1AO), creating a local area computer network of four laptops interconnected with our three rigs (by our CT experts, K6TV, K3NA and W0YK), and in erecting on the STE roof two Force 12 C-3 tribanders and a Force 12 two-element 40-meter beam (by all hands). Later we would drop a K6ANP-designed 80-meter delta loop off the side of the building, and erect a Battlecreek Special vertical (for 160 meters-40 meters). CW operation began that evening on 40 meters and 30 meters.

Because Syria is still in a state of war with Israel, the STE had decided to monitor and record all of our operations. They set up a monitoring post with several receivers and tape recorders in the room adjacent to ours. Our CT experts recognized immediately that our split frequency operation and normal CW operating speed of 32 wpm was causing frustration to our monitors as they tried to follow the action remotely. Ed Muns, W0YK, therefore, suggested that if the STE had a PC available, he would connect the monitoring post to our LAN, explaining that the CT software would automatically maintain a contemporaneous record of all of our contacts for them. The STE personnel agreed to this unexpected offer and were soon fascinated by the activity flowing across their PC screen from three rigs operating CW simultaneously. Ed, Eric, K3NA, and Bob ("TV Bob"), K6TV then demonstrated CT's ability to send the entire CW exchange using preprogrammed macros as well as to log the contact. With quarter inch phono jack splitters, Eric and TV Bob plugged additional sets of headphones into their rigs and invited the STE monitors to follow the action as our guys worked the pileups. These efforts in connecting the STE to our LAN and in explaining our activities helped establish an atmosphere of mutual trust that greatly aided our operation.

This trust became particularly important on Wednesday afternoon when I began RTTY operations at 1100z. In order to use the WF1B RTTY software, I disconnected a laptop connected to the LAN from one rig and put in its place another laptop that we had saved for this purpose. After a few minutes of hearing the FSK tones coming from the STE receiver but seeing no activity on the LAN, the chief monitor came to investigate. I explained how RTTY (the mode and the software) works and invited him to sit next to me and observe the activity on my laptop (and to listen on a second set of headphones). I told him that the RTTY activity was being logged separately on this laptop and that I would provide the STE with a copy of the log at the end of the operation. Having already seen CT in operation, our monitors were now familiar with computer controlled exchanges and logging, and were not unduly alarmed that this particular mode could not be linked to the LAN.

YKØA
Damascus
Syria

YKØA confirms QSO with ADRS

Day	1994	UTC	MHz	2 Way	RST
	Nov. Dec.			CW SSB RTTY	

Thanks to Omar Shabsigh, YK1AO, for securing the licences from the Syrian Telecommunications Establishment. YKØA operators were K3NA, K6ANP, N6TV, NW6P, W6OAT, W6OTC, WA2TMP, and WØYK.

The equipment consisted of two Yaesu FT-990 and one FT-900 transceivers, ETO Alpha 89 and 91β amps, two Force 12 C-3 tribanders and an EF-240 2 element 40m beam, a "Battle Creek Special" vertical and receiving loop for 40-80-160m from W8UVZ, K8GG, and WØCP, Heil headsets, IBM and HP laptop computers, CT software, Geoclock by Joe Ahlgren, and filters from N6BT and The Redwood Empire DX Association.

Special acknowledgement is given to the Northern California DX Foundation and Ham Radio Outlet for financial support, and to Yaesu for the transceivers and QSLs.

HAM RADIO OUTLET — Force 12 — YAESU Communications — ETO

QSL via W6OAT

The RTTY station consisted of a Yaesu FT-990 transceiver, an Alpha 89-A amp, the Force 12 antennas, a PK-232, specially optimized for RTTY by modem guru, Garry, NI6T, and an IBM Thinkpad with an external mouse. I worked split at all times, and, using a valuable tip I had learned the previous month from Eddie, W6/G0AZT, while he and I were operating from 8R, I programmed my RTTY calling macro to identify the station I was calling both at the beginning and end of the macro: "<callsign> de YK0A 599 <callsign> qsl?" This macro seemed to help all stations identify more accurately and quickly the station being worked, reducing uncertainty and helping the rate. It also helped alert stations when corrections were necessary to the callsign I had captured or typed.

Consequently, "busted" calls for QSL purposes were minimal, as were same band "dupes."

My first RTTY contact was made on 20 meters with I0VHL, quickly followed by DL8HBV, G0ARF, F5MSH, etc. After 77 contacts, RTTY operation ceased because all hands were needed again on the roof for lowband antenna work. I began again Wednesday evening on 40 meters at 1855z, operating in the European/Japanese RTTY window at 7025-7040 khz. I worked Europeans for two hours and then Japanese for one hour. When Japanese contacts began thinning around 2200z, I turned the beam back toward Europe/U.S. The first YK0A - U.S. RTTY contact occurred at 2233z with W5ZPA, followed by K5KLA, W8SEY, AA5AU and KB5VU. I was still operating in the European window because the very loud European broadcast stations above 7080 khz made hearing any RTTY signals impossible from Damascus in that portion of the 40 meter band. Although I tried to raise the U.S. again on 40 meters on Thursday night, I never again worked any U.S. stations there.

I worked some U.S. stations on 20 meters on Thursday afternoon between 1430z and 1530z, but the longest U.S. run occurred on Friday afternoon, November 25, beginning with N4SR at 1218z and ending with N6OXR at 1612z. During this period the RTTY station was the only one operational at YK0A. The rest of the group had accepted Omar's gracious invitation to meet the other YK hams over a typically sumptuous Syrian lunch with many exotic dishes. Although I would have greatly enjoyed the food and good company, I knew that RTTY operating time was becoming precious. Since CQWW would begin that night, CW would be our exclusive mode for the next 48 hours. Tom, NW6P, explained my dilemma to Omar, who, as a fellow ham, understood and excused my otherwise rude decision not to attend an important social function.

I was particularly anxious to operate during this time of day because all of our propagation predictions indicated this would be our best time—though probably not a great time—to work the U.S. on 20 meters, the principal RTTY band. The Solar Flux was only 80 and predicted openings were narrow and short. I had run projections using Miniprop while Eric, K3NA, used the more sophisticated SKYCOM program. These software packages generally agreed about shortpath openings, but SKYCOM's longpath analysis usually proved more accurate.

The opening on Friday unfolded just as predicted, moving from Europe to the U.S. east coast to the midwest and finally to the U.S. west coast. Upon request, the European stations stood by for the U.S. and were always well behaved. When U.S. propagation flagged I worked some Europeans, and waited for the U.S. to return. Eventually, European propagation mostly disappeared, as did the U.S. east coast and so on across the North American continent. In accordance with the propagation predictions, I turned the beam long path for the West Coast at about 1515z and immediately worked W6TEX who was running 100 watts. This path remained open to Northern California, Washington and Arizona for about one hour and was the last time I was to hear the West Coast on RTTY.

For CQWW CW, Rusty divided us into day and night shifts. Surprisingly, we worked relatively few U.S. stations on either shift. Being on the night shift, I was at the station when the contest ended Monday morning at 0200 local time. I decided to stay at the STE Training Center rather than walk back to the hotel for a brief sleep. But the contest frenzy had taken its toll, even on the RTTY faithful. I could not raise anyone for the next few hours on 40 meters.

I waited for the expected 20 meter opening to begin around 0415z. The morning call to prayer at around 0230z helped keep me awake as I listened to the news on the BBC. Finally, at 0400z I turned the beam to the east and started CQing. The first response came from JA2IVY at 0421z, and I continued working primarily JA's, with a sprinkling of VK's, ZL's and Europeans for the remainder of the morning. Since the pace was by now fairly leisurely, some JA's asked me try 18 mhz. In 20 minutes there, I worked 18 JA's. The pace began to increase around 1200z with more Europeans calling and I heard the first U.S. stations of the day at 1220z (my last U.S. contact was with N3BOB at 1227z). This was my signal to turn the station over to Len, K6ANP for CW. Having missed the long U.S. opening of the previous Friday, the CW gang were eager to work this time slot, hoping to increase the number of U.S. contacts from YK. Len did make a reasonable number of contacts during the next two hours, but conditions did not match those that occurred during the great Friday afternoon lunch. Total North American CW contacts from YK0A for the week finally totaled only 1,655.

When we arrived in Syria, we had expected to operate, with at least one transmitter, through Wednesday, November 30. Neither we nor Omar knew that Syrian customs regulations required us (because our gear had been allowed temporarily to enter Syria duty-free) to have all our imported equipment packed and returned to the airport for examination forty-eight hours prior to our own departure on Thursday, December 1. Upon learning of this regulation during customs clearance procedures the previous week, Rusty and Omar tried to find an exception that would allow us to continue operations. On late Monday afternoon, however, while Len was busy working the U.S. on CW, we were told that we would have to comply with the customs rules as written. We, therefore, disassembled and repacked all of our gear on Tuesday morning, November 29. We had brought a spare PK-232 to leave for Omar's use, and I tested it to be certain that it was still working properly.

After another trip to the airport by the "diplomats" to deposit our gear with customs for export, Omar took us on Tuesday afternoon to the

Damascus souk, a fascinating covered market in the Old City. We now relaxed, examining—and buying—Syrian handicrafts, dried fruit, nuts and fresh candy. Wednesday, we drove 200 km east into the desert to the oasis of Palmyra, the site of a vast ancient city. The extensive archeological ruins here (mostly Roman) are a "must see" for any visitor to Syria. That night we enjoyed a farewell Syrian feast with Omar, Marwan, Michelle (YK1AM) and Hikmat (YK1AM), all our good friends by now. The following morning Omar and Marwan took us to the airport at 5 am for our early-morning departure to Frankfurt.

Final YK0A RTTY statistics are as follows:

Band	QSO's (net)	Continent	QSO's (gross)
40	171	No. America	137
20	455	So. America	2
17	18	Europe	332
15	71	Asia	269
		Africa	2
		Oceana	4
Total:	**715**		**746**

Thanks to our Syrian friends and the STE for making this operation possible and successful. I hope we soon see Omar cranking out the RTTY contacts for those of us who still need it.

ADRS BBS UPDATE

HINTS FOR USING THE ADRS BBS

Here is the second installment on the ADRS BBS. I mentioned last month that upgrading your modem from 2,400 to 14,400 will result in a saving of money and better performance. For example, I have seen a file take from 30 to 45 minutes to download at 2,400 and about 2 to 3 minutes at 14,400. Don't forget to use Zmodem as your protocol. This will protect you so that if you lose the connection partway through the download and restart, even with a new connection, the download will pick up wherever it was thus saving some time. We are also running data compression and error correction which greatly improves the throughput.

When logging in for the first time try using Auto Detect for the Screen Display mode. The program will determine what the best connection is. This seems to confuse some of you and ASCII is picked instead. It may not work. If you would like to change anything which you put in, then, from the main menu, choose "Change user settings" and this will permit any change you like in your registration settings.. Once you are registered and you are asked for your name here is a short cut. When the request for a first name is on the screen put in your full name and password each separated by a space.

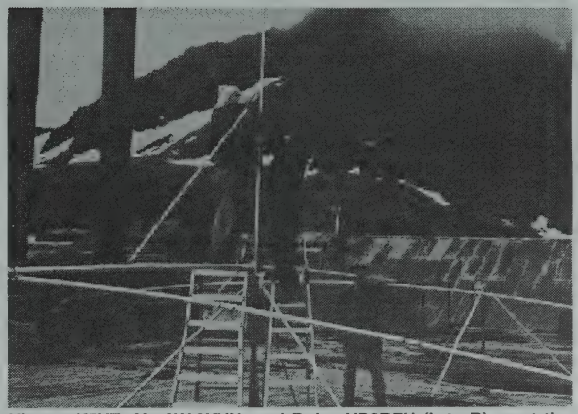
Having logged in, you will be told if there are any new bulletins. I suggest that you read the new bulletins. I will be putting some useful information in this area. At the moment I have not yet written any new ones but should get to it soon. If you would like hard copy of a bulletin, it is possible to download it. For example, after you press "D" you can list the bulletins you want by typing 1, 4-6, 8 to get Bulletins 1, 4, 5, 6, 8. These directions may seem elementary but they come about as a result of my watching some of you on my screen.

If you want to get a message to me. The easiest way is to choose "Comment to Sysop" from the main screen. It will be addressed correctly by the computer. I have put a number of files on the BBS but have had no input from you as to what you would like to see. Please let me know by subject matter and I will try to satisfy your wants. If you use the message system from the main menu, please put in the entire name, first and last, so that the program can put the message in the right mail box.

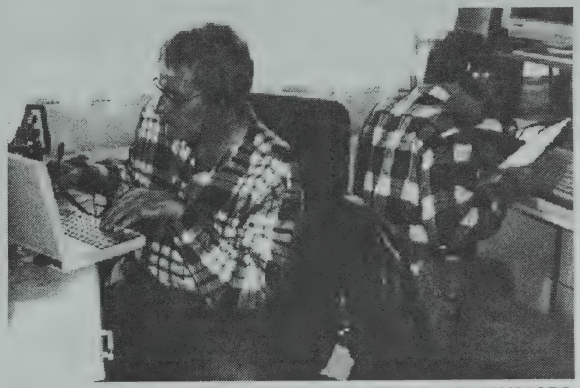
Updates will be here for all the programs sold by ADRS. They will only work however with a registered copy. RagChew, at this writing, is up to V 1.25. Download the latest, unzip and put in your directory as an overwrite of existing files and programs. If you are registered, you will be automatically updated.

73 de Al, W2TKU

(cont'd from page 24)



Vince - K5VT, Al - WA3YVN, and Bob - VP8BFH (L to R) erect the Cushcraft 40M beam on the roof of the abandoned whale bone meal processing plant for the VP8SGP operation at Grytviken, South Georgia Island. The team removed the DANGER DO NOT ENTER sign from the stairs going up 18 feet to the roof and very carefully avoided the holes in the roof. -- Photo by Jan Heise - WA4VQD



Vince - VP8CRC (K5VT) left operates low band CW while Al VP8CBC (WA3YVN) operates 20M phone at the home of Peter Short - VP8MA in Stanley, Falkland Islands. -- Photo by Jan Heise - WA4VQD

vised and logged all those contacts as 10M. I talked to Ray, WF1B about this when I came back and put it in as an enhancement request to add the WARC bands. One other enhancement request which I made was for him to sort the log and combine contacts for a station on a single label. The way it works now is that it prints labels by band, and if you worked a station three times on three bands you get three labels.

From South Georgia Island we made right at 300 RTTY contacts. We converted the 10M band entries to 30M and merged the RTTY log with the phone and CW logs in the CT contest logging program. All labels have been printed and sent to W4FRU, so if you sent in your QSL card(s) you should receive a VP8SGP card. Some people asked us about other digital modes. We needed to keep the operation as simple as possible and stayed with the RTTY defacto DX mode. My personal goal was to make at least 1000 RTTY contacts, and we certainly fell short of that. But, as Bob said "Well, now we have a reason to go back."

The Last Word

from the Publisher

Jim Mortensen, N2HOS • PO Box 328 • Indian Rocks Beach, FL 34635
CompuServe ID: 71573,1077

Thanks to Glenn W6OTC for the story about the YK DXpedition. While I have had difficulty in identifying the antennas among the ruins so beautifully portrayed in his slides, I know for a fact that he was there. The QSL card on the cover, dutifully made out to the ADRS, confirms the team's presence. I only wish that I had been able to work them!

Glenn adds another note as well, faxed just before I started to assemble this column. He tells of another DXpedition with quite a different story. On the one hand, it is about the world-wide DX Cluster operation on Internet (see also Jules' DX column). On the other, the story is not quite so pleasant and, perhaps, portends some other sticky moments coming up in the future. But let Glenn tell it his way:

"The story concerns the struggle by NI6T to get RTTY operating time on the current Conway Reef DXpedition. When I talked to him last night he just finished a big fight with one of the other ops who had 'ripped' the RTTY computer from its operating position. The fight is between RTTY and Low Band (especially 160) Vs those who want to run for the maximum rate—the very issue I am talking about at Visalia. AA5AU copied our QSO and posted the following on the DX Cluster—'congrats to 3D2CU RTTY op NI6T for fighting peer pressure and staying on 15M RTTY despite having the computer 'ripped' away from him and having to substitute his own computer. Later that night I saw this posting on the OH2BUA Internet WebCluster. OH2BUA picks up info from Clusters every 15 minutes in rotation from W5/F6CNB, WD5B, GB7DXI and DB0HFT. So, in short order, Garry's troubles became world-wide news."

We will hear more from Glenn soon. He will give us a full report on the Visalia convention (at which this subject will no doubt be number one of everybody's agenda), including a copy of his speech. Thanks again, Glenn.

There are two sides to every question (even though some of us might have trouble distinguishing the other side in the shadows!). Clover is a fine example. A note from Bruno HB9FU tells of his fondness for Express software. But, he complains, "the program lacks a softkey which, when pushed, rings a bell at all stations equipped with Clover and gets at least one of them on the air! As it stands now, I just let the CQ procedure grind away while I read a book. This exercise sometimes, but not always, results in a QSO. I have the feeling that Clover is for the mass transfer of errorless text . . . but not for ragchewing."

Unfortunately, Clover's image is as Bruno portrays it. Perhaps it is because the BBS operators first saw the PCI-4000's utility for their purposes. However, I have claimed from the beginning that Clover is the ultimate ragchewing mode. After several hundred hours of activity around the globe my conviction remains. Of course I define a QSO as a link containing multiple, simultaneous two-way transfers including full color photos, text or binary files and, on occasion, sound—with the keyboards chatting away all the while. This sort of activity, because of the huge amount of data exchanged may look or sound like an interchange between two BBS stations. But this multi-layered exchange produces for me a degree of satisfaction not found anywhere else in radio.

Now, things are going to be even more fun. In Express 3.0 (shipping, as they say, soon) you will not only have all the current bells and whistles but RTTY, Amtor and Pactor as well. A complete logging function is also included. In total it is another world class production. But the killer is the addition of a little applet called 'sketchpad.' This gem gives you the ability to sketch anything you wish on the pad while transmitting simultaneously to the pad window at the other end of the link. The funny little figure shown in the screen print (below) is history in the making, for it is the a screen capture from the first-ever trans-Atlantic (or trans-anything else) transmission utilizing this mode.

The crude drawing was made using a mouse, hardly the world's best drawing tool. Imagine the possibilities when adding a digital pad and pen to your artillery. A small 4X5 inch pad (like the Wacom) is relatively inexpensive (about $150 and decreasing) gives you the power to do everything from mechanical or circuit drawings to fine art. And if each end of the QSO is equipped with a color printer (like the Epson 720I for under $500, yes, under $500!) anything, including Christmas cards is within the realm of the possible. The printer is perfectly capable of performing all medium-duty printing chores and does a spectacular job of printing color at 720 DPI. This detail does take time, and it does require special paper for the final print, but let me assure you it is worth the time and the few cents extra. The Wacom pen is a splendid mouse. Its installation leaves your regular mouse in place, so you can have your pick. The pad itself is about the size of a regular mouse pad. Installation is simple as can be.

So, don't give up Bruno. Hang around 14065.5, pray for better propagation and one of these days you will be exposed to the ultimate link. Hi!

We failed to give proper credit and want to do so now. The wonderful Thomas Edison RTTY artwork on the front cover of the March issue was created several years ago by W2LTJ (now a Silent Key). We thank Crawford WA3ZKZ for providing us with both the artwork and the information. –

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Mike K7DSR wishes to start a discussion. And there is no better place than the Digital Journal for that kind of activity! Mike, who lives in the state of Washington, and who went with his XYL to Chile on a skiing trip last year in place of Dayton this year, has a beef. "Briefly I want to climb on a soapbox and snivel a bit about QSL practices. It seems many more folks new to the wonderful world of the green keys are looking for RTTY QSL cards from the state of Washington (and others as well, I would wager). It appears very few (primarily US and JA stations) have the courtesy to send along a SASE with their request. What with the cost of the card, envelope and postage, not to mention the inconvenience factor of finding and addressing the envelope, the enthusiasm to fulfill someone else's need for a card dimities rapidly. Jay WS7I tells me he is plagued with the same problem. I have and continue to truly empathize with the DX station who must constantly feed the card hoppers of the world. They have long taken the position that says—no SASE, no card. I too am about to take a similar position."

Mike raises a very good point. In the domestic chase for WAS, for example, there are serious imbalances. For example, if the same proportion of licensed hams in each state are chasing WAS, raw numbers suggest that a Wyoming ham has to send out forty or so New York cards for the good one he needs from the Empire state. At about 4-bits a clip (card, envelope and postage) the guy from Cheyenne could easily spend 20 dollars in California alone. Not fair, to say the least.

DX is less an issue because I can't really believe that people expect to get a card back without an SASE. If they do they belong to the 'naive and uninformed' segment of the hobby. If you want the card you pay the fare, both ways!

Perhaps the so-called domestic QSL 'courtesy' once existed. That is the 'you send me a card, I will send one to you' philosophy. Maybe some of the old-timers remember it as something that worked in the day of the two-cent postcard. It may work to some extent now, but it is no doubt an endangered practice. I am curious about how others feel about the issue now. So let's have a vote. The PROPOSITION: All QSL requests should be accompanied by a SASE. Vote yes or no, but vote.

1200 baud packet on 20 meters! Ed AB4PY reported via E-mail a serious situation on 14091.3 (LSB). "During the last few months a group of Central and South American stations have set up camp using 1200 baud packet. These guys are over 5 Khz wide! And they operate seven days a week during daylight hours. 1200 baud, normally associated with VHF, has no place on HF except on a specially allocated spot on 10M. The stations I am hearing as I type this are XE2SOC, XE3BKD, XF3RGS and TI0PAQ. It would appear that they are forwarding data and are operating in an unattended mode.

I suggest that ADRS ask the IARU to: 1-have the ARRL Auxiliary monitor the frequency and verify the 1200 baud usage and the stations involved. 2-Have the IARU contact their representatives in the countries where these hams reside and ask them to enforce the region's bandplan by having these stations switch back to 300 baud.
We have had a lot of hard feelings among the HF digital community over the past few years. These folks are sure adding fuel to the fire. Unfortunately many of the digital community can't monitor 1200 baud on their HF receiver so to them this is just another bunch of packet people with a signal 5Khz wide!"

Thanks Ed. The President of the ADRS has reacted positively to your suggestion.

Peter Gf3IRM writes that "I will raise the question of CCW operating frequencies in the next column as I feel this must be settled once and for all. I had completely forgotten that you have special segments for different classes of operators over there. I had thought that '20 Khz up' would be a good idea and I was supported by many here, Germany and Holland." So, if you have any strong feelings about this issue, please get in touch with Peter without delay. His address is 2 Briarwood Avenue, Bury St. Edmunds, Suffolk IP33 3QF, England.

Peter also reports that he has now logged 67 countries toward his goal of reaching **95 in '95** although he admits that most of them are contest QSO's. But what's the matter with that? And how are you doing toward that target? Whenever you reach it, send your logs to Jay WS7I.

Peter TY1PS has been monitoring any news of PactorII's progress. Several interesting tidbits arrived via CIS over the past week or so. One long bulletin from the US Embassy Radio Club station in Riyadh contained a great deal of such information. They now operate an experimental Pactor (I and II) and G-Tor BBS on 14080 Khz (mark frequency). The single frequency obscures the fact that there are actually two BBS operations behind the signal. If you call 7Z1AB in Pactor I or G-Tor you will reach the basic Winlink 1.1 BBS. Call 7Z1AB-L2 to reach the stand-alone PactorII BBS. Look at the tables and comments on page 22 to get a first-hand look at some of the field experiences with this new mode.

By the time you receive this, Dayton 1995 will be history. And you will no doubt have heard that I soon reach the end of my hitch here at the Digital Journal. I will see the next two issues through to completion, but will then turn over the keys to my successor. It's about time. After all I have been in and around these pages for almost five years and have written far more words than appear in the average 100,000 word novel. It is time for a change. There will be a final good-bye in July but I did want you to know that I am no longer on the board of the ADRS and will fully retire when the July issue goes into the post office in Goldenrod.

73 de Jim N2HOS sk

Fun on the Packet Highway

by Phil Anderson, WØXI

What's next for digital communications? Who knows, but exciting applications will continue to emerge in the future, to be sure. Just consider all the applications we've created since basic packet radio techniques were introduced: 9600 baud packet, moving mail via the packet network nodes, communicating more effectively with Pactor and G-TOR, and tracking vehicular location using global positioning units (GPS).

Now, high speed packet radio is really starting to take hold. With the advent of "data ready" radios from the major transceiver vendors, 9600 baud has surged in popularity. However, applications of new technology don't just happen overnight. For example, Kantronics introduced a G3RUH-compatible, 9600 baud modem option for the Data Engine way back in 1990. Since high speed data radios were not available then, we designed and introduced the 19,200-baud-capable D4-10, a fast switching, 10 watt unit for 440 MHz. Based on our experience with high speed radios, we were able to advise the off-shore transceiver manufacturers on how to adapt their voice-based designs for 9600 baud operation today. And now we've complemented that cooperative work with the KPC-9612, the first true dual-port TNC for simultaneous operation of 1200 and 9600 baud packet. The KPC-9612 can also operate at 19,200 baud, if coupled with the D4-10 or another suitable radio.

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Sending mail via the packet network is probably the most popular application for packet radio today. Users can enter messages at their stations, and these messages can be forwarded automatically. Since mailboxes were introduced, a number of networking "nodes" have evolved, and these provide for the structure or "network." Within amateur radio, all nodes are, of course, volunteer-based. Some are configured as a personal computer (PC) and regular TNC while others have the node embedded within the TNC firmware. With the advent of 9600 baud systems, Kantronics is supporting this area with K-Net, an optional networking node available for the KPC-9612. The KPC-9612, with the K-Net EPROM installed, is compatible with NET/ROM® or the G8BPQ nodes and allows the KPC-9612 to function as both a TNC and a node at the same time.

Tracking mobiles is another interesting activity for both amateur and commercial use, and Kantronics, the technological leader, has embedded GPS compatibility within the newest KPC-3 firmware. With a GPS unit, a KPC-3, and an FM radio, your station can be tracked by others. The firmware gathers NMEA-0183 data from GPS units, updates the KPC-3's clock with "satellite time," and stores and/or beacons location information automatically. The KPC-3 is ideal for this, since it's small and consumes very little power.

Whatever new applications may emerge, you can be assured that Kantronics will be leading the fun. We introduced mailboxes into TNCs with our PBBS in the KPC-2, G-TOR to the HF digital community for a cost-effective improvement of HF digital communications, and were the first to provide off-the-shelf 19,200 baud TNCs and radios for high-speed packet. So join in with us and experience the fun!

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